Ice.

NOT very many years ago, there was exhibited in a window in the Strand, London, a huge plate, apparently of ice; a little water was in the plate around a remarkably transparent piece of glass, and on the mass was written "Ice for sale." No shop in busy London attracted more attention or had more stationary gazers: we heard of this piece of "ice" in all parts of the island, including Scotland; for so lately as 1845 few English people had handled ice in summer, and not one of them had stopped to reflect that a piece such as they supposed they had seen would not keep from day to day as the representative glass had done.

Steamships were then a novelty, but had commenced to bring a few tropical fruits to England, and oranges from Portugal and Spain. Dining one day with a literary gentleman, he descanted largely on the improved lot of people of moderate incomes, and was proud that he could treat his friends to a pine-apple and some ice, luxuries heretofore confined to the wealthy.

In Switzerland, in the same year, after a weary tramp among the hills and valleys, our party approached a glacier in the valley of Grindelwald; but night coming on we took up our quarters in a new hostelry, where there was evidence of a strong desire to please. We asked for iced milk, and that it might be brought quickly. The ready "yes" gave promise of the veritable article; but time flew slowly, and there was neither ice nor milk. After an hour of impatience the bell was answered, and another favorable response; but this too, failing of results, the party agreed to go and see what was the matter,—and after much questioning it came out that a maid had gone to the pasture pretty high up the mountain, and a man had taken a bucket and gone to the glacier for the ice, both of which made their appearance as we were retiring, at eleven o'clock.

These reminiscences show that Europe has only lately waked up to the importance of employing ice in summer. In Paris, they produce the article artificially, and they have a very pretty way of freezing drinking-water in a glass bottle. You send an empty bottle to the manufactory and they give you another thus congealed for a penny or two; it melts about as rapidly as you require it, and is most valuable in that warm city during summer. They also make and sell solid blocks of ice, but at a high price. With their railroads, and the glaciers of Switzerland, Paris and other continental cities might be supplied with this luxury at a cheap rate. Ice creams are a very dear article in both London and Paris, being from twice to four times the price of New York or Philadelphia. In Havana, ice has become an indispensable article; they contrive to give delicious ice-waters from the various fine fruits of the island, at moderate charges. In the East Indies, and indeed, in all wealthy tropical countries, ice supplied from America is a necessity; once introduced, no moderately high price is sufficient to exclude it; and its absence, from any unforeseen cause, creates a severe panic.

The great improvements of building ice-houses in our own climate, consist in placing the food and fruit room below the mass, and in thoroughly draining off the water as it melts.

The present season, New York and Philadelphia, and of course, the more southern cities, have been more or less dependent on the Bostonians; but what, we would ask, is to prevent another advance in the ice trade among us? there is scarcely any regular investment that would pay better than laying in during a cold winter, enough for two seasons,—and with care there is no difficulty in doing this. There would be some loss necessarily by melting, but every one of any experience will remember that not unfrequently, at the close of the warm season, their ice-house has presented the appearance of sufficient almost for another summer. We fully believe it to be within the scope of commercial, and of course of private advantage, to preserve ice for two seasons; the hint may be taken advantage of by somebody who can afford to lay out of a small capital for the prospect of a larger profit. If the winter that it was kept over proved to be a cold one and others had ice as usual, our speculator on probabilities would still have his crop for sale, losing only the interest and a slight decrease of bulk; whereas, in case of a deficiency, his profits would be immense. In private families two houses would be advantageous for this purpose, the one to be kept over, not being opened till actually wanted; and we are not sure but that in most cases two houses thus treated are better than one.

Mr. Clay, in one of his speeches, when complimenting our eastern friends for their industry, remarked that they found on their soil nothing to export but granite and ice—"absolutely nothing but granite and ice," and yet see their prosperity. There are yet plenty of openings in the ice trade for enterprising men.

THE ORCHARD HOUSE.—A FEW SUGGESTIONS.

BY FOX MEADOW.

Mr. Editor:—It is said necessity is the mother of invention. The truth of this is made manifest daily. Necessity and repeated failures are oftentimes the means by which the observing mind traces the cause, and ultimates wonderful scientific practical results, and makes *the man of experience.*

Such we presume to be the cause that brought out the "Rivers' Orchard House," which is now giving so much pleasure and delight in England, and which is destined to become in this country, and very shortly, too, one of the noblest features in horticulture.

The public have greatly to thank you for the republication of Mr. Rivers' valuable manual. We know that the orchard house can be so designed, arranged, and adapted to fruit and plants, as to comprehend the whole in one magnificent structure; and be assured, Mr. Editor, that if your humble servant only held the influence or power, he would place just such a *noble orchard house* in *a noble position* in our New York *to be noble park.* Why should such a park be without its Sydenham? Surely this would be as appropriate to the grounds as a tower, from whence to gaze at the stars.

With what joy would the citizens of New York and its suburbs, pay their twenty-five cents for admission to feast their eyes and charm their hearts

by viewing the beautiful designs of man and the wonderful productions of God. The London trains carry out daily many *hundreds* to view the great Paxtonian Palace, where man's ingenuity has combined living colors to represent vivid fire,—here, so bright, the glare dazzles the eye,—there, the soft combinations of the rainbow; and yonder in the distance, the lurid fire of one of nature's outlaws bounding through eternal space;—and we stand in awe, wonder, and amazement. The man that has been tippling at the rum-bowl all his life, stands fixed to the spot. *He is thinking*—absorbed; you see him again entering the interior of the palace; he pauses. The glittering festoons suspended from crystal domes, never before touched his sight, and he seems to be recalling his senses; "is this a reality, or am I in a fairy land!" At length he concludes he will try and grow some of those beauties in his own neglected garden, and he does so. The money he found for rum, goes now to buy flowers and fruit trees; a higher taste has grown up; the purity of the one has banished the other; horticulture makes good men and intelligent fathers.

The orchard house is the house for the *million*;—the house for him who possesses a princely income, and him who toils for his daily bread. From a magnificent building capable of growing all fruits, flowers and vegetables, down to the small pit for salads, strawberries, &c. The old notion of requiring large tracts of land for roots to ramble about in, will soon fall to the shades, and the only thing that horticulture requires at the present day is, to have amongst us good practical gardeners, who are good practical chemists. There are plenty of good chemists in the country, and if they had two heads on their shoulders, (gardener and chemist,) gardeners would be much benefited by their experience. It appears to me that when men *really know something* they think it worth nothing to the public unless it is wrapped up in a lot of mysticism, to let others see they know something that no one else can comprehend; and they use large words where simple, easy terms would express things much better, and be understood by everybody.

But of orchard houses, Mr. Editor. First, the materials of which they should be built; secondly, their construction; thirdly, of the fruit trees and how to grow them, with the kinds adapted for the purpose; and lastly, on the bountiful crops plants are capable of producing in the orchard house properly constructed and managed;—and as these few observations are not needed by gardeners, but are intended for amateurs, I shall call things by their simple terms, so as to be generally understood.

First, the kind of material of which the house should be built. In England, the Rivers house is simple, light and cheap, and well adapted to the mild winters of that country, but here there are contingencies that England little dreams of. In the first place, one of our heavy winter's snows on Mr. Rivers' rafters of fir poles, would make an end of the house and all inside of it. We say, therefore, use strong, substantial rafters; pine, two by seven inches, and placed six feet apart, with three cross bars one and a half by three inches, placed over, or let into the rafter for supporting the glass bars. Make a good strong roof. The bars for receiving the glass can be cut out of one-inch pine boards, which makes them strong enough, one by one inch and a half, and grooved half an inch deep and a quarter of an inch on. These bars are easily got out by the circular saw, and are very moderately cheap.

Mr. Rivers, if I understand him correctly, is of opinion that all fruit trees in the orchard house would be benefited if the temperature of the house did not drop below 26°—*so are we.* The less *freezing* that goes on in the roots and branches of fruit trees, the better. The less *sun* they get on them when frozen, the better. Let us here suggest that the house be built tight as well as strong. We know what March winds are in England, and bitter experience has taught us what they are in America. It is the general slaughter month of the whole year.

Build your orchard houses tight, and at the same time put in all the ventilation that you possibly can, and use no hemlock boards.

One summer's sun, and they are all in ribbon strips;—use pine; it can be bought nearly as cheap as hemlock; and also take care to well batten all the ventilators, or they will soon warp and split; my experience is, no wooden ventilator can be made tight unless it is panelled; then they will stand.

Now, in reference to the glazing, the putty should have half white lead worked through it; bed the bars with the putty, and press the glass down tight to the wood; take the putty-knife and smooth off the putty that stands on the upper surface of the glass, and that is all that is required on the outside; there is no necessity of puttying on the upper surface of the glass, as it only cracks and breaks away, and no painting outside will prevent it. After finishing the outside as directed above, paint down each bar with good thick white lead, and you will find the roof to last longer than by any of the present modes of work. You also will be required to take off the extra putty on the inside, and paint as before. Houses built by placing the rafters six feet apart, resting on locust or cedar posts, should have three cross bars between the rafters, one and a half by three inches, to support the glass bars, and placed distant from each other to suit the size of the glass. Houses built in this manner are strong and substantial, have a very nice appearance, and can be built for from two and a half to three dollars per lineal foot, complete. We know of over a thousand lineal feet erected in this way for the exotic grape alone, which is all heated throughout with hot water; and as to the general appearance, there are hundreds of houses that have cost over twelve and fourteen dollars per foot, that look no better, if they look as well. Houses should be built *strong;* if rough, you can dispense altogether with the carpenter's plane; *it is a very expensive tool.*

Our next suggestion is in reference to the form of the house. The span roof I think will be found best adapted to this purpose. The great question, however, is, How are we to grow these fruit trees? How is labor to be saved? In England this is no question of importance, but in America it is a very serious one, with the private establishments as well as the commercial gardens. In the first place I should use no pots at all; use boxes. They do not attract the heat like the flower pot, and consequently they will take much less watering. I have grown vines from eyes in boxes and pots side by side, the pot containing three times the amount of soil that was held by the box, but the box invariably made three times the amount of wood or cane. It makes quite a difference to a plant whether its roots cling to the side of a *roasting hot pot,* or a *cool moist board.*

And it makes also a great difference in the producing of red spider, bug and scale, and a whole host of these detestable, ever-tantalizing little pests to horticulture. But if these fruit trees are to be grown for a commercial purpose, we say, use neither pots nor boxes. *Plant out;*—now inplanting out

we don't wish to be understood that the borders must be large vine borders, but they may be made two feet wide by eighteen or twenty-four inches deep, or so constructed as to suit the house. It is not a great *bulk of soil* that plants *live on*, but the *element* they *suck up* from it, and the less the quantity of soil the plant has to live in, and feed from, the greater is the amount of mouths or feeders or roots they will throw out in search of their required support; and if you keep your little borders well mulched (top dressed) with good decomposed manure, and constantly pour over that mulching guano water, there is no fear of the plant troubling itself much about the *bulk* of soil you have given it to grow in.

As a proof of this, we will give you a fact in connection with this mode of culture. We know a small house one hundred and two feet long, a lean-to, in the front and back of which was run a lot of common boards that made a sort of trough about two feet wide and deep the whole length, and this was filled in with soil, in May 1st, 1857, and then was put in young vine eyes just beginning to grow, and they were planted one foot apart. In the following May, 1858, we saw the whole house full of ripe fruit, the bunches weighing from three quarters to a pound and a quarter each; this season was cut the second crop off these same vines, March 20th, 1859. The fruit cut from one vine we had the curiosity to see weighed,—it weighed over ten pounds; and four of the bunches weighed one and a half pounds each; one bunch two pounds; and the whole of the fruit was well colored and well swelled. Now we could not begin to do anything like this in pots; in fact it would be folly to attempt it.

The next question we have to think about is, the sorts of fruits adapted for the Orchard House, and this question will not take much time to answer, nor much space in your valuable journal; for we know no fruit that cannot be induced to pay due respect for its protection and care. Perhaps, above all, the plum would feel doubly dutiful for protecting it from the ravages of the curculio. The peach, apricot, nectarine, and plum, can and will be grown to perfection; but we must not be satisfied with the *dozen*—we must and will have them by the *thousand*.

So great is the demand for fine fruits of all kinds in the great city of New York, that some of the prices paid are almost fabulous, and fruits of the highest character are now *daily* standing dishes on the tables. Ere long we shall see the pine-apple grown here for the public markets to a much greater extent and perfection than is now done in Europe. What a glorious sight will be the *Fruit Palace* of America, with its noble centre, glowing with its golden pine-apples, and the sweet honey-dew dripping from its luscious cheek. Soon will the difference of quality be appreciated; soon will it be found that the imported pine-apple is as different from the home cultivated one as the Bartlett pear is from the Swedish turnip. They must and will be grown for sale. Peaches are sold in Broadway at a dollar each when those from the South command no more for a whole basket full, and the ladies that promenade that great thoroughfare *know* pretty well that all the black grapes are not Black Isabellas. The first bunch of Hamburgs that was ever offered in New York was sold with difficulty at twenty-five cents per pound; now, at the same season of the year, they will command two dollars. Four years ago grapes could be sent from Boston *called* Black Hamburgs, red as foxes, with mealy bugs running all over the bunches as they hung in the windows, apparently frightened to death at their new

quarters ; but to-day, Mr. Editor, those same fruiterers say, Keep your red grapes and white bugs at home,—and at last we see them in Washington Market, left at some vegetable stall to be sold on commission. Should you chance to walk into some of the fruit stores in Broadway to buy a bunch of grapes, you must not feel surprised if the bunch of Hamburgs or Muscats should weigh five pounds, Royal Muscadine two, and White Frontignan three pounds. Yes, sir, we may stare at the grapes, but they are in the scales—we can't deny it—and they are plentiful enough, too.

How to grow or how to train trees for the Orchard House, is another point that we shall have to talk a little more about shortly, in detail ; but for the present we say that if the amateur wishes to grow them in boxes, he may adopt the finger and thumb system of pruning,—the same, in fact, that he practises on his specimen plants in the greenhouse or stove. By constant stopping, after beginning properly, any form can be given to the trees that may be desired, and at the same time made productive. The great demand for fine fruits in the city of New York alone will cause large numbers of orchard houses to be soon erected. The cry is, Where can we buy peaches, plums, nectarines, and apricots ? We shall soon see acres of glass erected for this purpose, and still the cry will be, *give us more.* Grapes under glass are at the present the only fruit that is generally in cultivation ; but there are many other fruits that equally demand the attention of the commercial gardener, which would be as productive and profitable. Strong, rough, tight, well ventilated, cheap houses, is what is required here, made tight to keep out the frost, whitewashed to keep out the sun, (the glass in winter), employ small, shallow borders for the roots, plenty of ventilation or air, plenty of liquid manure, plenty of determination to accomplish the end, and you will find plenty of success.

IVY.

BY THE EDITOR.

This invaluable evergreen climber is not sufficiently appreciated in this country; wherever it will thrive it should be planted, both for covering walls and to run up the blank stems of trees, using bone manure as the best enricher of its soil. Nothing creates the idea of age so quickly as abundance of ivy. Where it is not sufficiently hardy to ascend trees or walls, a handsome effect may be produced by allowing it to run over the surface of the ground, where it will form a fine verdure in shade that injures grass. We are not sure but that it might form a carpet of green in the southern states, where grass is difficult to cultivate. At Philadelphia it succeeds admirably, though some of the finest old specimens are occasionally totally destroyed by the cold ; sudden extremes from warmth to great depression of the thermometer, seem unfavorable to its longevity. The "English" here is the most hardy, and the "Irish" the most rapid growing, though some difference of opinion exists on this subject. Philadelphia is probably the northern limit where you often see large walls ivy-covered, though at Sunnyside, Washington Irving's, and a few other places in that region, where it is planted on the *north* sides of dwellings, it is occasionally seen very beautiful and healthy ; but generally at the North it can be success-

IVY BOWER.

fully grown on the ground, where it runs very well, and if covered with leaves and brush it will do perfectly. It might be employed as in the preceding cut even in northern climates, and annually laid down carefully before the cold weather sets in, and we advise a trial of this as a probable means of success. It should always be protected from the sun in winter, which kills it by sudden thawing after severe frost. Downing thought so highly of it as to say nothing could take its place. For further particulars regarding this most beautiful of climbers, we refer to an article of some length from our own pen, in the 4th Vol. of the *Horticulturist*, December, 1849, page 252, and now proceed with our translation from the *Revue Horticole:*

"There may be used for the ornamentation of parks and gardens, an arrangement of Ivy to form a trunk by uniting and interlacing its branches. I am certain of this from experience: in 1852, I transplanted a Laricio Pine sixteen feet high, and placed it before the house I occupy, in the Jardin des Plantes. The tree died in a few months. I had the branches cut off, and then planted at the root two Ivys and two Banksia roses; for two years, the two plants lived in harmony, and the yellow flowers of the Banksia roses arranged themselves very gracefully on the deep green of the Ivy leaves; but little by little the latter outgrew the rose, stifled its more feeble companion, and reached the top of the pine trunk. Then I had an iron circle of three feet in diameter placed at the summit of the tree; the branches of the Ivy very soon clasped the circumference, and now they weep over all around, and present the appearance of a candelabra always green. The stem of the Ivy is already strong enough to support itself, if the support should crumble; but the resinous nature of this evergreen trunk ensures its duration. If I had it to do again, I would make the circle six feet in diameter, in order to have between the trunk and falling branches, a bower, where at all times shade and freshness would be found.

"In central Europe, the Ivy grows very vigorously, but not beyond the 58° of latitude. It grows, however, in the island of Gothland; but it is no longer found in Sweden, in Ostrogothia, or in Westrogothia. In the British Isles, it stops at the Shetland Isles, and no longer grows in the Hebrides, nor in the Ferve. In England and in Germany, it embellishes all the ruins, clothing them with perpetual verdure. No traveller can forget the Ivys which adorn the ruins of the Castle of Heidelberg; those of the feudal fortress of Bressuire, and the Castle of Courtalein, (Eure-et-Loire,) inherited by the family of Montmorency. This castle dates back to the year 1440; it is defended by a tower of sixty-nine feet in height; the ivy is trained with much care on the trellis, and the windows seem carved out of the foliage. It would be difficult to conceive the charming effect, which this castle of verdure produces.

"In England, I admired the Ivys which cover the ruins of Kenilworth Castle; Loudon cites those of Brockley Hall, in Somersetshire, that climb on the trees. One is ten feet in diameter, another eleven feet—both must be very old, for the growth of the Ivy is slower than in the middle of France. Another Ivy covers a cottage in the city of Morpeth, in Northumberland; it shows a diameter of nineteen feet to the height where it divides into branches, and ten feet above the soil.

"Ivys so often cover ruins or old edifices, that it would be very interesting to study their growth in diameter. It can be done by counting the

number of woody layers of the large Ivys cut at the base. A certain number of examples compared among themselves would furnish us means that would serve for a foundation for calculations upon the age of all the large Ivys, whose diameter should have been measured; for these plants growing near a ruin, in a soil which is neither cultivated nor manured, must have a moderate growth, such as we might expect. The estimation of the age of an Ivy on a ruin, would be very interesting in itself, for I am convinced that examples of them would be found of astonishing longevity! further, we would plainly have a minimum limit for the antiquity of the ruin itself. In short, the latter is necessarily anterior to the Ivy that covers it. The vegetable physiology and the history of ruined monuments, such as cover the soil of Europe, would then have an equal interest if these studies were pursued."

IONA, PELHAM, AND WODENETHE.

BY R. G. PARDEE.

A BRIEF visit to the three above-named places of interest up the Hudson, was enjoyed during the past season.

At Iona—a rocky isle of about three hundred acres, near the west shore of the Hudson, two miles above Peekskill—I found Dr. Grant most industriously employed in the cultivation of his grapes. He has with skill and vast labor brought the forty acres of tillable land on the island to a very high state of cultivation, and covered it with vineyards and orchards of the choicest grapes, apples, pears, cherries, plums, and other fruits.

Deep trenching, thorough pulverization of the soil, mixtures of compost, leaf-mold and muck, have accomplished wonders. Dr. Grant is well known as a most intelligent and enthusiastic cultivator of grapes. He has not only vast numbers of vines, of most all the varieties of hardy grapes in bearing; but his activity in the way of propagation astonished me. For instance, he has more than ten thousand plants of the popular Delaware grape, that are No. 1, with growths of from six to ten feet this season. Then follow as many more of not quite so mature growth and age. He has besides, an unusual stock of Allen's New Hybrid, which the doctor thinks will prove to be the best white grape; thus rivalling the Rebecca. Then follow the Anna, Clara, and various new seedlings, some of which promise well. All were in fine condition.

From thence I proceeded on a long desired visit to Pelham, the well known country seat of Robert L. Pell, Esq., the successor of General James Tallmadge as President of the American Institute.

Pelham is situated on the west shore of the noble Hudson, stretching along its shores for nearly three miles, comprising a princely estate of *twelve hundred* acres. Here I saw, what was most nearly my ideal of those magnificent English estates of which we read.

Long, persevering, intelligent labor, with ample means, has brought these fair acres up to the thorough high-culture of the best garden, and the returns now, I should judge, abundantly repay the outlay.

Thorough drainage by nearly 100 miles of stone drains; deep tillage, from eighteen inches to three feet; with all the manure needed, intelli-

gently and timely applied, has done the work. Two hundred acres and over of large, flourishing Newtown Pippin apple-trees, said to number more than 20,000 bearing trees, was one of the sights. Eighty acres of potatoes in full vigor, of one variety, his early seedling, with rows three-fourths of a mile in length, were worth seeing.

The acres of grape vineyards, of raspberries and strawberries, all cultivated in the best manner; the thorough-bred horses and cattle, and the most costly sheep, all well cared for and thriving, were truly pleasant to behold.

It was delightful to ramble over a part of the *nine* miles of gravel walks in the spacious lawns and park. It was a rare treat to examine the *nine* beautiful fish-ponds and the *fifty* varieties of choice fish raised there; to see the fish come on call to the banks where we were standing, and eat the bread offered them, running boldly through and over our hands by the thousands; young shad, gold fish, and other kinds, feeding as tamely as if a treaty of peace was signed, sealed and recorded between us.

But I dare tell no more of Pelham at this time, and will drop down to Wodenethe, the splendid country seat of H. W. Sargent, Esq., near Fishkill. Here we found a tasteful and elegant mansion, with some twenty-five acres of the most highly ornamented lawns and gardens.

Enterprise, skill, taste, and wealth, have probably here gathered the largest and finest collection of evergreens of which our country can boast. It is barely possible that there may be one exception. It was gratifying to walk over these grounds and feast on the rare varieties, and thorough training of the plants. Hundreds are worthy of honorable mention, but I do not propose to enumerate more than a few. Some exquisite specimens of Araucaria excelsa, Torreya taxifolia, Cryptomeria Japonica, Glyphostrobus pendula, Abies Monstrosa, fern-leaved Arbor Vitæ, and the variegated cedars, particularly attracted attention.

The specimens also of variegated cut-leaved oak, ash, beech, and horse-chestnut, were very fine.

I also noticed the striped green and plain green Century plants, (Aloe,) the largest size and in the best possible condition. The same may be said of the Sago and other varieties of the palm. A house of liberal proportions is now in process of erection expressly for these palm-trees to luxuriate in.

The thousands of plants in the numerous borders of the magnificent Rhododendrons, Ericas, and Hollys, including fifty varieties of the former and eighteen of the latter, and the weeping variety, excited particular interest.

In the borders were scores of young peach, nectarine, and plum-trees, scarcely more than three feet high, but heavily laden with the brightest colored, fair and delicious flavored fruit. These dwarf trees, scarcely as large in the stem as your small finger, were cultivated in large earthen pots, forced in the vinery and orchard house, so as now to bear the fruit at maturity sunk in the open border partly shaded.

My notice was also attracted to several vines of the Wistaria Sinensis now in fair blossom. It has so generally and so unusually declined to blossom in my neighborhood this year, that I was pleased to observe them.

Wodenethe is admirably sheltered by trees and shrubbery, so that I should fear that Mr. Sargent's valuable experiments as to the hardiness of the new varieties might not always be conclusive, except with similar cultivation and protection.

For instance, large specimens of the Chili Pine are here which had remained out, in warm locations, for several winters, but the soil was light; I fear that high cultivation would have made the wood too tender, even there. The thermometer undoubtedly sinks very low every winter, so far north, and therefore the reports of experiences at Wodenethe are always looked for with much interest.

STANDARD ROSES.

So long as English gardens afford examples of beauty and cultivation for all the rest of the world, so long will the rose maintain its position as the popular favorite. We have flowers with greater brilliancy of color and chaster symmetry of form, which bloom earlier and last longer—whose value is even increased by their having no thorns; and yet, in whatever aspect it is viewed, whether as being hardy and easily grown, or as fragrant and agreeably colored, or as handsome and beautiful in all its parts, or whether it is associated with the sports of childhood and the pleasures of old age—the rose, both of the garden and the field, has more fond admirers than any other flower either native or exotic; the emblem of the country itself, no other flower is so fit a representative of an English garden, and no other flower has stronger claims to embellish the architecture of an English home. Since, then, the rose is so much and so justly esteemed, it is not surprising that its cultivation should be carried on to an extent commensurate with its great merits, and unequalled in any other country.

It is thought, however, that its culture as a standard has been kept somewhat stationary, and that but few persons are aware of the magnitude to which the rose may be grown, or the admirable effect which it may be made to produce on a lawn or pleasure ground; yet with a sufficiently strong stem, and a system of careful and patient training, there can be no reasonable doubt but that the standard roses could be grown to the size and form of the ordinary examples of Weeping Ash, having the branches all produced from the top of a single stem, and flowing downwards on all sides; thus forming at the same time an example of English cultivation, and a very ornamental object for a lawn. It may be also observed that the construction of a comfortable seat round its stem would afford a cool and fragrant retreat during the hot days of summer, so that in fact those who could not enjoy the luxury of a bed of roses might at the least have the curtains.

It is not wished to be inferred that either the Dog rose or the Manettii rose could be grown to the strength of the Ash stem, nor is such vigor necessary in a standard, trained in the manner alluded to. There does not seem, however, to be any reason for supposing that either may not be grown ten or twelve feet high, and with proportionate strength. But the chief, if not the whole, support for the head must be provided artificially, by driving down a stout stake or pole, to which the stock may be fastened, and then the branches directed downwards to small hoops of wire of any diameter, from five to fifteen or even twenty feet, according to taste. The climbing or spreading sorts of roses are of course the most suitable for growing in this form, but indeed almost any rose may be selected; and if in the course of a few years the branches are carried out to a great radius,

some light props might be necessary to the wires at the interior. If grown simply as an object of decoration on the lawn, the standard may have a stock about seven feet in height, and the diameter of the head at the extremity of the branches may be about five feet, so that in general form it would appear like a blunt cone. But if it is desired to combine the ease of the arbor with the elegance and beauty of the tree, then it must be grown to a larger scale, and provided with a seat round the stem. In this case the branches should be trained to the ground, so as completely to conceal the interior, an entrance being left at one side. The general management of the tree when once well established, is similar to that of roses grown in the common way, and therefore need not be entered upon here.—P. F. K. (*Gardeners' Bot. Mag.*)

HOW TO BUILD YOUR COUNTRY HOUSES.

BY CHARLES DUGGIN, ARCHITECT, 532 BROADWAY, NEW YORK.

THE present number is illustrated by a design I have made for a gentleman at Flushing, L. I. It is situated on an eminence, and commands extensive views on the east and south sides.

The outline of the house is nearly square. The veranda is carried round on three sides, stopping against the dining-room projection on the west side; this projection helps to take away the square appearance of the house, and at the same time gives a good termination for the veranda. The remaining three sides of the building have the roof so gabled as to avoid the unpicturesque appearance it would have presented had the cornice been carried around straight.

To produce a picturesque appearance in designing a country house, care must be taken that the exterior be sufficiently varied in mass and detail, as to avoid as far as possible monotony of style.

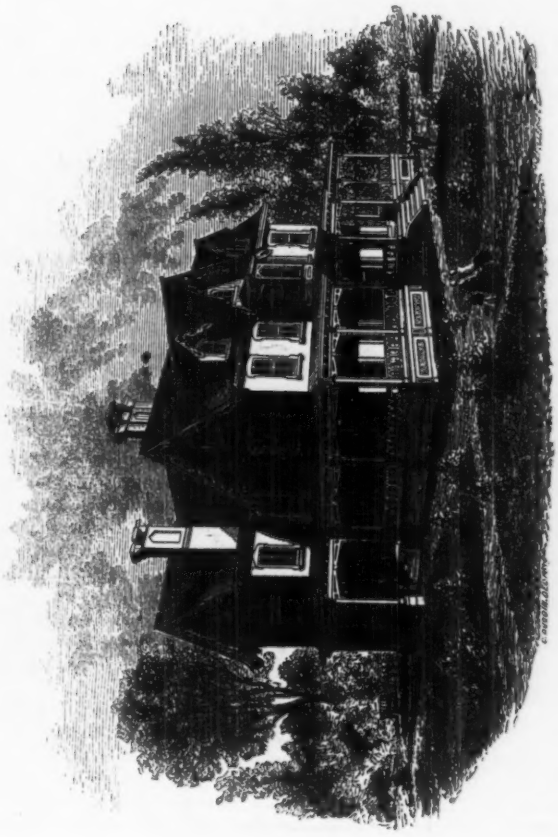
Uniformity in all the sides of a country house being adopted, the repetition becomes wearisome, and the eye loses that source of pleasurable sensation which arises from the variety exhibited in viewing an irregular and picturesque exterior from various points.

Symmetry in design may however be adopted to advantage where the house is seen only from one point of view, or in the immediate vicinity of a town; but where the house is seen from more than one point of view it should be avoided.

The Arrangement.—There are two main entrances provided, one on the east and one on the west side. The east entrance is intended for summer use,—when visitors may be mostly expected,—the door is therefore made to open directly into the reception room. The entrance on the west being more for use in winter, is provided with a carriage porch. There is also a side entrance for convenient communication with the stable and out-buildings.

The parlor is placed on the south side, and extends the whole depth of the house. There is a bay window in the centre of this front, carried up to the second story.

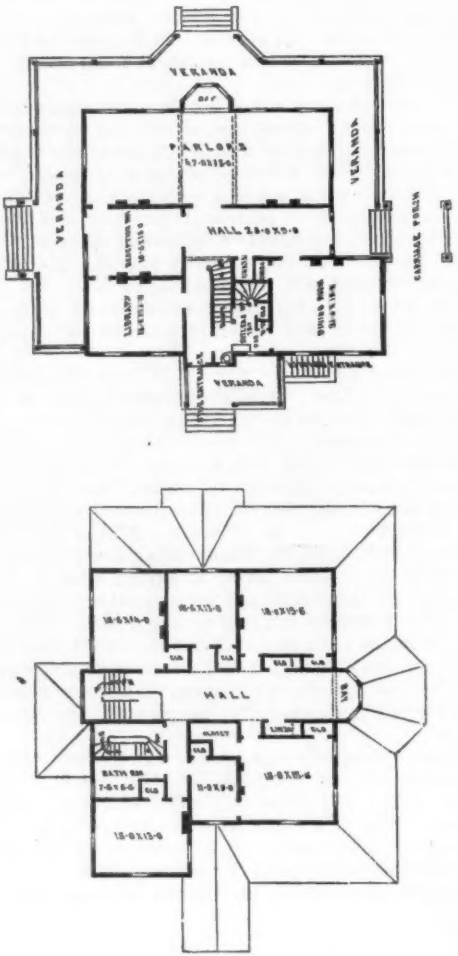
The dining-room communicates with the back stairs and butler's pantry, which is fitted up with dumb-waiter, closets, sink, and wash basin, supplied with hot and cold water. There is also provided a china closet to the



A COUNTRY HOUSE

dining-room, and a convenient place for the side-board between the door to china closet, and the door to butler's pantry. The dining-room and butler's pantry are warmed by means of a heater connected with the back of the kitchen range.

The staircase is located in a side hall, so as to leave the main hall unobstructed.



It being deemed desirable to obtain a thorough circulation of air through the house without carrying the hall through, the plan has been so arranged that by throwing open the doors of the reception room and parlor, the desired result may be obtained; which, on reference to the plan, it will be seen gives a thorough, open, and airy arrangement. And by standing in the centre of the house, a view may be had east, west, north, and south.

The kitchen is located beneath the dining-room, and is a large, well-lighted, and airy room, fitted up with dresser, sink, store-room, closets, and all conveniences. There is also provided in the basement, the wash-room, milk-room, store-rooms, furnace, coal cellar, and servants' water-closet, all well-lighted and ventilated.

The plan of the second story will show the arrangement of the chambers. All the rooms have ample closet accommodation, with drawers fitted in each. The hall is carried from north to south, the entire depth of the house, and is nine feet wide. This makes a famous play-room for children in the winter season. The bay window being continued up on this story, makes a pleasant place for sitting, as it commands an extended view. If deemed necessary, an additional room could be formed at this end of the hall.

The bath-room is provided conveniently over the plumbing below, and also in close communication with the dressing-room.

The third story has a large hall, same as on second story, and five chambers, with closets to each; and also a large store-room, and place for the tank.

There is a tower provided on the north side, over the staircase, where the projection is drawn on plans. It is not, however, seen in the view shown of the house, although forming a very ornamental feature to the building.

The height of the basement is 8 ft. 6 in.; the first story, 12 ft.; the second story, 10 ft.; and the third story, 8 ft. 6 in., at the highest part.

Construction and finish.—The outside walls of the basement are built of stone, and cemented up on the outside to keep out the dampness; the inside partition walls in the basement are of brick. All the walls above the basement are constructed of wood, the frame being filled in with an inner coat of lathing and plastering. This, to my thinking, is far preferable to brick, both on account of its cheapness and its more thorough exclusion of both heat and cold. The frame is covered on the outside with narrow rebated clapboards—the window casings being cut out of 1½ inch stuff. The roof is covered with ornamental shingles, and all the work and materials throughout are of the best description. The rooms on the first floor have enriched cornices and panelled ceilings. On the second, the rooms have plain moulded cornices.

Cost.—The contract price for this house was $9,900. This included the painting, drains, cisterns, and cesspools,—in fact, everything excepting the furnace, mantles, grates, and plumbing. The building, occupying 105,000 cubic feet of space, brings the cost per foot to nearly 9½ cents, (see page 504 of last volume.) The cost of this house could be reduced without materially affecting the convenience, by leaving off the tower and carriage porch, and otherwise simplifying the details of both outside and inside finish.

THE NEW VENISON.

The splendid parks of England have always been one of her most striking features in the eyes of continental visitors. Glorious in their hill and dale, their ferny brakes, their rich pastures, their rivers, and their mighty trees—relics, some of them, of primeval forests which have passed away—they present unequalled sanctuaries for beasts of the chase, and the multitude of our game is as characteristic as the localities in which they live. Here roam the fallow deer in such herds as can be seen in no other land. Here sometimes, too, as we see them at Windsor, the stately heads of the red deer tower above the dappled, silver-grey, or dark, dun hides of the smaller species—more frequently, however, living apart in a district of their own. And to these two species of deer, with the pheasant and the ordinary game of the country, the population of our parks is limited. But the fallow deer and the pheasant are acclimated animals—the latter being, in many parts of England, and everywhere in Scotland, of comparatively recent introduction. And if the fallow deer and pheasant have been acclimated so perfectly as to live under precisely the same conditions as if they were indigenous, why should not our catalogue include as many of the deer, and as many of the game birds of the temperate regions of the whole earth, as their individual beauty or quality for the table may make desirable? There is no reason to the contrary whatever. The owner of any deer-park in England may, if he chooses, have the luxury of at least a dozen species of deer and antelopes to adorn its glades; and every covert may have among its denizens, according to the capabilities of soil and aspect, three or four varieties of American or Asiatic winged game, in addition to the universal pheasant and the migratory woodcock.

In the park at Melton Constable, Lord Hastings has a herd of Canadian wapiti, rapidly increasing in number, a herd of Indian nylghaus, and a herd of the little Indian hog-deer. The Indian axis succeeded perfectly some years ago in Somersetshire; and the Earl of Ducie found no difficulty in breeding the magnificent Persian deer (*Cervus Wallichii*) at Tortworth, which he subsequently presented to the Zoölogical Society. The herd of Barbary deer at Hawkestone are already thirteen in number, bred from animals which Viscount Hill purchased at the dispersion of the Knowsley collection in 1851; and in an adjacent part of the park the Ceylonese samburs will, in a few years, be equally numerous.

The Zoölogical Society have another species—which, with moderate success, will soon be available also—more brilliant than any yet named, and probably of first-rate quality as venison. This is the Indian barasingha (*Cervus duvaucellii*), of which a fine male was fortunately sent to them in 1857, by the Baboo Rajendra Mullick, a wealthy gentleman of Calcutta, who takes great interest in zoölogical pursuits, and is possessed of a large collection of Asiatic quadrupeds and birds. The barasingha carries a magnificent head when adult, and has a lustrous golden summer coat, which in the rich green of an English park would produce the most picturesquely beautiful effect that can be imagined. Asia yields other noble species which are equally well calculated for a European existence. There is the great shou of Thibet, so near the wapiti in size that at one time it was supposed that the great American species actually existed in both hemispheres. There is the hunghul, of Cashmir, of which Colonel Markham, and more

recent sportsmen, have brought home splendid trophies. There is the whole group of Rusa deer, which, although natives of more southern regions, adapt themselves with singular facility to the vicissitudes of our climate. And if we turn to America we have at once half a dozen species of another most graceful form, of which the obvious distinctive character is the absence of brow-antlers and the forward direction of all the other points. With such animals as these, acclimatation is comparatively easy, but there are many others to which the same operation may be extended with perfect success; and the Société Imperiale d'Acclimatation, in Paris, is on the point of establishing a great vivarium in the beautiful Bois de Boulogne, as a centre from which the experiment may be made in France.

This interesting question has very recently been brought to a practical test which deserves to be recorded. And the successful essay having been made, not with a North American or North Asiatic species, but with an antelope of the South African wilderness, the difficulties were necessarily much greater than those which would have to be provided against in the hardier deer to which we have alluded. On the 7th of January, the first eland (*oreas canna*) killed for the table, and bred in England, fell at Hawkestone Park, in the county of Salop. He weighed one thousand one hundred and seventy-six pounds as he dropped, huge as a short-horn, but with bone not half the size. Active as a deer, stately in all his paces, perfect in form, bright in color, with a vast dewlap, and strong, sculptured horns, the eland in his lifetime strode majestic on the hill-side, where he dwelt with his mates and their progeny, all English-born like himself. And of these three pairs remain, roaming at large along the picturesque slopes throughout the day, and returning to their home at pleasure. Here, during winter, they are assisted with roots and hay, but in summer they have nothing but the pasture of the park; so that in point of expense, they cost no more than cattle of the best description. All travellers and sportsmen agree that in the quality of his flesh the eland is unapproached by any ruminant in South Africa—that the males grow to enormous size, and lay on fat with as great facility as a true short-horn, while in texture and flavor they are infinitely superior. The experiment which has been tried at Hawkestone proves that in this climate, under circumstances not particularly favorable, the eland maintains much of the renown which is accorded to him as a *pièce de resistance* in the wilderness. The texture of the lean is remarkably fine, the fat firm, delicate, and characteristic. In all the joints great juiciness was developed, and, no doubt, as a foundation for sauces and for game soups, eland will hereafter rank among the choicest elements, in addition to its undeniable superiority as a meat.

The antecedents of the herd of elands at Hawkestone are interesting. The idea of acclimating the eland in England is due to the late Earl of Derby, who, between the year 1835 and the period of his death in 1851, accumulated an immense collection of living animals at Knowsley. Some notion of the extent of his labors in this way may be inferred from the fact that nearly one hundred acres were devoted to this purpose, while the whole area occupied by the Zoölogical Gardens in the Regent's Park only includes twenty-six acres and a half. In Gleanings from the Menagerie at Knowsley Hall, a privately printed work, Lord Derby has recorded that in November, 1842, he received two male elands and a female, which were then for the first time brought alive to Europe. This female produced seve-

ral calves, beginning to breed in 1844, but of all her stock only one was of her own sex, and she herself, with the males, having died off in consequence of being fed on land newly laid down in grass, it at last happened that this female (calved in 1846) was the only survivor. In 1851 a fresh supply of elands was obtained from the Cape of Good Hope, but in the summer of that year Lord Derby died; and, having been President of the Zoölogical Society for upwards of twenty years, it appears that he bequeathed to them his reconstituted herd, consisting of two males and three females, as a last proof of his regard for the institution, which had then been restored to the prosperous and effective state in which we know it. In the Zoölogical Gardens the elands have occupied a conspicuous place, and form a characteristic feature in the African quarter, where they are associated with the giraffes, hippopotamus, leucoryx, and ostriches. Here the elands have been treated with extraordinary success; and, from the year 1853 to the present time, the females have regularly and without intermission reproduced, without any accident, or the loss of a single calf.

The first English proprietor who was prevailed on to relieve the Society of their surplus stock was Viscount Hill; and, in the spring of 1855, a male and two females bred by the Society became his property, and were transferred to Hawkestone. The result of their establishment there has been a perfect success, as four calves have been born; and the six-year-old male has, in consequence of this increase, been now made available for gastronomic purposes. In every shape in which it has been tried—braized brisket, roasted ribs, broiled steaks, filet sauté, boiled aitch-bone, etc.—the fine texture and juiciness of the flesh have given ample proof that a new meat of surpassing value has been added to the products of the English park. And although Viscount Hill has been the first to prove this fact, the experiment is not confined to Hawkestone alone,—the Marquis of Breadalbane having established three animals of the same species at Taymouth, which will begin to reproduce in the approaching spring, and the last pair bred by the Society having been placed by Mr. Tatton Egerton, M. P., in his noble park at Tattan, in Cheshire. Since the five elands bequeathed by the Earl of Derby passed into the possession of the Zoölogical Society, twenty-one calves have been born from them and their produce; and at least five more may be calculated on during the current year. It is much to be regretted that six of the earliest of the eland calves were allowed to leave this country; but now that the acclimatation of this noble antelope is a demonstrated fact, and its merits known, there is no doubt that effective measures will be taken to secure the most rapid extension of the existing number.—*London Saturday Review.*

[We have waited for the agricultural papers to publish the above, but as it has not met our eye in any of their pages we transfer it to our own. If we were to designate any State for a trial of the new venison, it would be Kentucky.—Ed. H.]

ACHIMENES CANDIDA.

PRESENTED to the Society by G. U. Skinner, Esq., in the spring of 1848, and said to be from Guatemala.

From a foot to a foot and a half high; stems purplish, nearly smooth, with a few scattered, spreading hairs near the upper end; leaves about four inches long; flowers about half an inch long, with a yellowish tube, and a white, flat, oblique limb, with a short line of purple dots along the

middle of each lobe except the frontal one, and many more within the tube. Generally three flowers appear together, of which the central ones open first and the side ones some time afterwards.

It requires the same kind of treatment as the other sorts of Achimenes. Being a neat, free-blooming plant, it is worth cultivation on account of its white blossoms, an unusual color in the genus.—*Horticultural Society's Journal.*

GRAFTING THE GRAPE-VINE.

THERE is no fruit tree cultivated under glass of so much importance as the vine, nor any so useful for the dessert. Pine-apples, although expensive, owing to the amount of fuel which they require, are less esteemed by most persons. Peaches and nectarines are admirable and delicious when brought to perfection; but they are soon over, unless forced in successional houses. From one grape house, however, a long supply for the dessert may

be daily obtained, with proper management and a judicious selection of sorts.

But it frequently happens that in houses of well established vines there are sorts for which it would be desirable to substitute others. A set of young vines, raised from eyes, if planted in a fresh made border will soon fill a house; but the rooting up of an established plant from amongst others, and planting a young one in its place, is in some respects an objectionable proceeding; for the roots of those intended to remain are liable to be injured, or otherwise they take possession of the newly loosened soil prepared for the young plant before the latter is itself able to do so. In order to avoid these inconveniences recourse should be had to grafting, which will be found the best mode of substituting for any existing sort one that is more desirable. As regards the vine, however, the principle of this operation is not, generally speaking, so perfectly well understood as it ought to be. It is very simple; but many failures, with considerable loss, and disappointment, have been the result of not knowing it. It consists in *performing the operation when the vine is in active growth, and can be cut without bleeding.* If this is attended to, any of the usual modes of placing the scion is contact with the stock will succeed, such as whip, cleft, or saddle grafting; but a certain failure will be the result of every mode if performed when the vine is in a bleeding state.

Mr. Knight states in a paper read before the Horticultural Society, in 1821, that "The practice of grafting the vine appears to be very ancient; for it is mentioned both by Cato and Columella in a way which shows that it was common in the vineyards of Italy at the period in which they wrote. It must consequently have been an operation of easy execution though it is rarely seen to succeed well in the hands of the modern gardener, who is, nevertheless, certainly much better provided with instruments, and can scarcely be supposed to be inferior in skill or science to the cultivators of that period. It is therefore probable that the ancients were acquainted with some mode of operating, of which the modern gardener is ignorant. It is well known that the ancients in propagating the vine, employed cuttings which consisted partly of one-year-old and partly of two-year-old wood." Mr. Knight conceived it probable that the success of the Roman cultivators in grafting their vines might have arisen from the selection of grafts similar to their cuttings. He therefore selected scions consisting of about 2 inches of old wood and 5 inches of annual wood. With these he was successful; but the condition of the vine as regards its vegetation is not stated. It is, however, evident that if he had known the simple principle to which we have as above directed attention, he would have at once expressly and clearly pointed it out. Instead of ascribing his success to the circumstance of employing a portion of two-year-old wood, he could have stated that with scions of one-year-old wood the chances would be that not one in 20 would fail, especially in the hands of so practised an operator as Mr. Knight was known to be. This great physiologist, however, in 1832, pointed out the right principle in the analogous case of grafting the walnut-tree.

So far as we are aware the credit of first discovering and explaining the essential principle for the successful grafting of vines is due to the late John Braddick. In a communication from that gentleman to the Horticultural Society in 1822, and which was published in the "Transactions of the Society," details of experiments are given which render evident the cause

of failure, and likewise the principle according to which success in vine grafting is ensured. Believing that many of our readers would profit by an account of these interesting and conclusive experiments, we give the following extract from Mr. B.'s communication.

"The information which I collected from books on that subject was, that vines may be easily made to grow by grafting; and that the proper time for performing the operation was in January and February, for vines growing under glass; and in March for vines growing in the open border. But out of 40 or 50 vines which I operated upon in the above months, I had the mortification to find that very few of the grafts grew, and those which did take became weakly plants.

"I observed that the stocks of the vines grafted as above mentioned all bled profusely, and upon unbinding those grafts which did not take, I found that the parts of the grafts which joined to the stocks were sodden and turned black, by their being steeped for a considerable time in the thin sap of the stock.

"To stop the bleeding I tried every experiment with styptics, cements, etc., which I ever heard of, with many others suggested by my own imagination, but all without effect. One experiment I will mention, as it may serve to show the great power of the rising sap of the vine while its buds are breaking. On March 20, in the middle of a warm day, I selected a strong seedling vine five years old, which grew in a well-prepared soil against a south-west wall; I took off its head horizontally with a clean cut, and immediately observed the sap rising rapidly through all the pores of the wood from the centre to the bark. I wiped away the exuded moisture, and covered the wound with a piece of bladder, which I securely fastened with cement and a strong binding of waxed twine. The bladder, although first drawn very close to the top of the shoot, soon began to stretch and to rise like a ball over the wound; thus distended, and filled with the sap of the vine, it felt as hard as a cricket ball, and seemed to all appearance as if it would burst. I caused cold water from a well to be thrown upon the roots of the plant, but neither this nor any other plan which I could devise, prevented the sap from flowing, which it continued to do with so much force as to burst the bladder in about 48 hours after the operation was performed; the weather continuing the whole time warm and genial.

"I now fitted a graft to this stock, and after binding it on, I took a piece of bladder doubled, and made a small hole in it so as just to let the tip of the graft and the eye pass through the hole; the inside of the bladder I covered with a cement made of bees-wax, resin and tallow, and bound the whole with strong waxed twine from just under the eye of the graft to 6 inches below on the stock. The sap, having now no other way to escape, was forced up through the pores of the graft; in a short time I was pleased with observing the bud of the graft swell, and when the other vines on the same wall began to grow it broke, and made a shoot with several joints. It however soon became evident that no union had taken place between the graft and the stock, as the shoot of the former turned sickly, and before midsummer died entirely away.

"The next season I took a healthy growing vine in a pot, and carefully matched it with a seedling vine of the same size, growing in the open ground; these I inarched together, and bound a bladder round the wound instead of using cement. Upon cautiously removing the bladder at different

times, I found that both the vines bled profusely, and no adhesion began to take place until they had both shot out four or five joints from each of their eyes; the bleeding then ceased, as I judged, by the sap becoming more glutinous.

"It consequently now occurred to me that the proper time for cutting off the heads and grafting of vines, without the danger of their suffering through bleeding, was when they had reached that period of their annual growth at which the sap ceases to flow thinly and rapidly. I accordingly cut the branches of several in that state, and grafted them with cuttings of the preceding year; all these grew; the operation was performed by whip-grafting, and no other covering was used than a binding of bast surrounded with grafting clay.

From these and various other experiments which I have since made, I feel confident in stating that healthy vines may be successfully grafted with young wood of the preceding year's growth from the time that the shoots of the stocks which the grafts are to be put upon have made four or five eyes until midsummer; with every prospect of the grafts growing, and without the least danger of the stocks suffering by bleeding.

"Some cuttings of vines sent from Madeira which I received from the Horticultural Society were grafted on the 10th of May by me on seedling vines which were growing under glass, but without fire heat, with the following results:—

"The *Verdelho* shot 14 feet, produced one small bunch of grapes, and ripened its wood well.

"The *Negro Molle*, grafted on the same stock, shot upwards of 12 feet, produced no fruit, but ripened its wood.

"Another graft, of which the name was accidentally lost, was not put on till the 1st of July; it was then worked on the top of a young shoot of the same summer's growth; this has also grown and ripened three eyes of its wood."

From the above experiments it is evident that by grafting the vine when its state of vegetation is such that bleeding ensues, the consequence is complete failure; on the contrary, when the operation is performed after the buds of the vine have burst into leaf, when no bleeding takes place, the flow of sap being then readily taken up by the foliage, complete success is the result; and this, to the best of our knowledge, was first clearly pointed out by M. Braddick, in the above communication.

About the year 1834, Mr. William Gowans, Cadder Garden, near Glasgow, was very successful in grafting vines, of which he produced a proof by exhibiting a bunch of grapes from a strong, vigorous, well ripened shoot 22 feet long, from a graft of the same season. His plan was wedge-grafting, and, as stated in the Transactions of the Horticultural Society, second series, vol. II. p. 114, no fewer than 22 out of 23 grafts were attended with decided success. He selected for a scion a portion of the preceding year's shoot with one eye, and cut it into the form of wedge; a shoot of similar age and thickness was split down the middle, and both sides thinned to fit the wedge-shaped portion of the scion, which was inserted with its eye opposite to that on the top of the stock; then tied and clayed over, leaving a hole for the bud. We have found, however, that whip-grafting answ er quite as well, and in many cases is to be preferred. After describing his mode of operation, Mr. Gowans adds, "What I thought, and still think of

essential importance to success in this mode, is to leave the eye or young shoot on the top of the stock, and allow it to grow for a few days, when it should be cut off, leaving only one eye and one leaf to draw sap to the scion, till it be fairly united to the stock.

"With regard to the time for grafting I find it will succeed pretty well when the stocks are about to break into leaf. But I think there is more certainty of success when the shoots of the stock, into which the grafts are to be inserted, have made 12 or 15 inches of new wood. For instance, the grafts which I made on 25th February this year have not broken so freely, nor yet advanced so far, as those grafted a month after when the stocks had made 15 inches of new wood: by this time the sap has begun to flow freely (into the leaves), and the danger of the stocks suffering from bleeding is over."

In the "Reports of the Fruit Committee of the Horticultural Society," there is an account of a vine having been very successfully grafted after it had come into leaf, by Mr. Spary, of the Queen's Graperies, Brighton. For a Trebbiana in a bearing state a Muscat was desired to be substituted on the 1st of April, 1858, the Trebbiana being at that time in full leaf; it was cut off rather more than 2 feet from the ground, a cleft was made in the top of the portion of stem left, and in this cleft was inserted, on the one side, a scion of the Muscat, and on the other one of the Golden Hamburgh. The former grew to the length of 18 feet in the same reason; its girth measured very nearly 3½ inches; and it also bore fruit.

From what we have stated, the cause of failure in vine grafting will be fully understood, and therefore can be easily avoided in future. There is in fact as little difficulty in successfully grafting the vine as there is in grafting the apple or pear; and any one who wishes to substitute one sort of vine for another may do so without the risk of disappointment. He may cut back at the winter pruning to where he wishes to graft, or he may wait till the vine is in leaf; in either case allow the uppermost shoot on the part left to push, say 6 or 8 inches, place the graft by whip-grafting opposite that shoot, which may at the same time be stopped; bind the stock and scion together with matting, surround with clay, and over this some moss which should be kept moist. Finally, cut back the shoot left on the top of the stock to one leaf as soon as the graft begins to push.—*T., in Gardener's Chronicle.*

MANAGEMENT OF BOUVARDIAS.

It is singular that a family of plants so rich in color as this is should not have been, until recently, more generally cultivated, for certainly a more gorgeous bed for the flower-garden, than one produced by a few dozens of Bouvardias planted side by side, it would be difficult to imagine. Years back, in some old gardens in the north of England, Bouvardias used to be seen in great abundance, and presented splendid masses of color in the old mixed borders, and also as pot specimens for the greenhouse stage. They are propagated with great facility, both by cuttings of the young wood and by pieces of the roots cut into lengths of one inch each. In both cases the cuttings should be placed in a gentle bottom heat, and those formed of the young shoots must be kept tolerably close. When they have grown to

the length of one inch, pot them singly into small pots in a light rich compost, and nurse them with care until they are established. Old plants, while in a dormant state, may also be increased by divisions of the plant, as each shoot with a root to it will make a plant. Plants so obtained, or from cuttings of the previous year, are the best for planting out in the flower-garden, as, if they are not strong, they rarely flower satisfactorily. The proper time to divide the old plants is in March; each part should be potted in rich light compost, such as loam, leaf-mould, and rotten dung, and they must then be placed in a forcing-house or hotbed to induce them to start vigorously, and until they are thoroughly established. Afterwards move them to the air, so as to get them thoroughly hardened by the time they are planted in the garden in May. The soil in which they are planted should be rich, deep, and well drained, and the situation must be rather sheltered. During the winter the plants may be kept dry under the greenhouse stage, or in a shed or cellar.—*London Florist.*

MAGNOLIA CAMPBELLII.*

It is not our intention to compare what we know of cultivated Magnolias, with the magnificent plant shown by the illustrations of Himalayan plants from Messrs. Hooker, Son & Thomson. But before entering upon our subject we cannot forbear introducing a remark. We have cultivated two years a hybrid Magnolia, called Lenné, entirely native, whose bright color struck us particularly, when we saw its flowers for the first time; what then will *this one* be? what an impression will be made by the first flowering of the magnificent Magnolia Campbellii. What would not some give even to see it, or have it for *one day* a prisoner in their orangeries!

"This superb tree has been chosen by Dr. Thomson and myself," says Mr. J. D. Hooker, "to perpetuate the services which our friend Dr. Campbell has rendered to our inhabitants, in the foundation of a hospital, now in great repute, and to thank him for the large share he has taken in the various researches calculated to throw light upon geography, natural products, arts, manufactures, and the races of Nepaul, &c. The M. Campbellii was discovered in Bootan, by Dr. Griffith. It is a large forest tree that grows on the outer chains of Sikkim, at an elevation of 8 or 10,000 feet. It is not often found at the same elevation on the central chains. Its trunk is upright, and covered with a black rind, and often grows eighty feet high; its wood is tender, and of little value. In April, the tree is profusely covered with flowers, to the end of its branches, before the leaves appear. The flowers, with little smell, are of various shades; white, deep rose, scarlet, and generally six, eight, and ten inches in diameter. In the month of May, it is in full verdure, and the fruit ripens in October, when it produces more flowers, but smaller, and often imperfect.

The plants while young have smooth glossy leaves, but when older, the under sides become more and more downy.

India possesses two other species of this genus, of which one, the M. globosa, which heretofore was only found in the interior of the valleys of Sikkim, on the edge of the forests, at an elevation of 9 and 10,000 feet.

* See Frontispiece.

The latter is comparatively a small tree, with caducous leaves, round flowers, of the size of one's fist. Its leaves usually make their appearance with the flowers, which then embalm with their perfume the delicious evenings of the month of June. This Magnolia is nearly allied to the Japanese species, or the M. conspicua, cultivated in our gardens. A third species, exclusively Indian, is the Magnolia sphenocarpa (Roxburgh, Coromandel Plants, Vol. III, p. 266). Its native home is the sub-tropical valleys of Chittagong, in the mountains of Nepaul.

The M. Campbellii and the M. globosa, perhaps will be naturalized in England; the sphenocarga will bear a quasi—tropical climate."—*Revue Horticole.*

NOTES ON NEW AND SELECT BEGONIAS.

BY DANIEL BARKER, WEST MERIDEN, CONN.

Begonias are fast becoming universal favorites, and most deservedly so, for wherever floral beauty and handsome foliage are required, it is combined in this genus to a remarkable degree. The Begonias, within the last few years, have been rising in estimation with all lovers of fine flowering and handsome foliaged plants, which is partly due to the introduction of many charming species from abroad, with many fine hybrids—the result of the European "hybridists." The genus is likewise remarkable for the profusion and long continuance of its blossoms, there not being a day throughout the year but some of them may be seen flowering or producing their fine and elegant foliage in the greatest perfection.

The following fine species and varieties are now introduced and growing in this country; they promise to be a fine exhibition of themselves, during the ensuing winter months.

Begonia Mosacea—This beautiful species was introduced from the western Cordailleras, of Columbia, by that indefatigable collector, M. Triana, to Brussels. It is a tuberous-rooted kind, with fine foliage and large blossoms of a fine rose color.

Begonia Multifolia—A very beautiful species discovered by M. Bonpland and Humboldt, on the mountains of Quindin; the flowers, which are pure white, are produced in the greatest profusion for several months.

Begonia Oipusifola Miniata—A charming hybrid obtained by crossing B. Opusifolia and Miniata; the result of which was the bright and beautiful flowers of the latter upon large umbils like the former.

Begonia Opusifolia—A beautiful and distinct species, producing large clusters of pure white flowers, which are produced in great profusion for months in succession.

Begonia Griffithii—A most beautiful species from Bhotan; the leaves upon *young plants*, are obliquely cordate, and which I think will be large when fully developed; the ground color is a deep rich green, very handsomely variegated; the centre and margin a deep red with a pale green band between them.

The above description is taken from quite young plants when fully developed; I think this will not only prove a valuable acquisition, but one of the most beautiful of all this popular tribe.

Begonia Hydrocotyfolia Manicata—A very interesting and beautiful variety of a close growing habit; the foliage of which is round, large, and beautifully mottled, with spikes near two feet long; of rose-colored flowers, one of the very handsomest winter-flowering kinds.

Begonia Wagneviano—A fine species from Venezuela; very free flowering; growing from one to two feet high; the male flowers are pure white borne on small panicles.

Begonia Herallifolia var. Nigvicans (Syn. B. Punetata.)—A fine winter-flowering variety, the flowers of which are borne on large panicles nearly white, the wing of the seed-pod rose-colored with the seed-pods a light green, forming a very pretty and delicate contrast; the foliage, which is palmate, is beautifully blotched with black on the margin of the lobes.

Begonia Muroptera—The flowers of this species are borne on a close, terminal panicle, of a bluish white, with yellow stamens; the foliage upon the under side is beautifully and very prominently marked with red on the veins.

Begonia Rex—One of the most beautiful of the genus; the surface of the leaves is of a purple-tinted olive green in the centre, and for about an inch wide at the margin, with a broad band of silver green intervening and extending to the point. This highly beautiful kind is not only most early, grown into a fine specimen, but one of the most early propagated.

Begonia Tumaitesii—A very compact growing variety with beautiful foliage of a purplish green and crimson, richly blended, clothed on both surfaces with reddish purple velvety hairs, and blotched with white on the upper side; the delicate white blossoms suffused with red, form a beautiful contrast with the darker color of the leaves.

The description of the last two are taken from that magnificent work the "Illustrated Bouquet," which agree in every particular with new plants now growing.

GRAPERIES AND GRAPE GROWING.

BY WILLIAM SAUNDERS, GERMANTOWN, PA.

In the March number of the *Horticulturist*, for 1858, I described a system of building glass-houses on the fixed-roof, or continuous-rafter principle. Having, since then, had several houses put up on a different method, and one which is in some respects superior to that already described, I have prepared the following sketches of construction for the benefit of those who are contemplating building. For Orchard houses or, indeed, any kind of structure for plants, I consider that it will form the most elligible combination of advantages.

Fig. 1, shows a portion of the front elevation;—*a a* are 3 by 6 inch rafters which are the main roof supports; these are tied together as shown by the cross-piece *h* in fig. 4. They are set 7½ feet apart, and are rebated on the edges to form a glass-bed; *b b b* are cross-pieces made of inch plank 3 inches wide, inserted between the rafters, so that their upper edge will be one and a half inches below the upper edge of heavy rafter. These support the sash bars *f*, of which a full-sized section is shown at fig. 3; *d* is an inch board 14 inches wide, let 1½ inch into the rafters so that it is flush with the glass-bed, projecting so as to form an eave to throw off water. The sash bars butt against this board, and the glass laps over it,

forming and neat a tight finish. In glazing the glass is merely bedded in putty,—none used outside ; *e* shows how the ventilators are situated,—they are hinged at top, and worked from the inside by an upright rod ; the up-

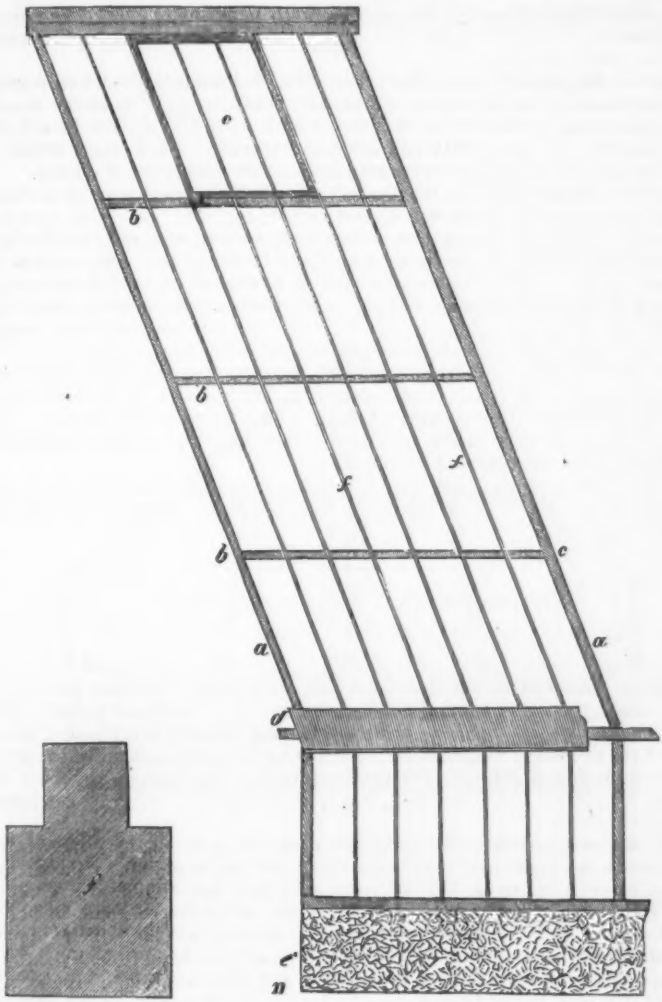


Fig. 3. Fig. 1.

right elevation is constructed in a similar manner as the roof, and portions of it may be hinged to the wall plant for ventilators.

Fig 2 is a section across *b*, *c* in fig. 1.

Fig. 2.

The letters in the figures have reference to the same parts in all. Fig. 4 is a section of a grapery built on this system, showing the walls, border, etc. The dimensions of this house are, width 28 feet, and 15 feet in height from level of sill. The stone walls *i i* are 6 feet in height; 2 feet above the outside ground level, and 4 feet foundation. The centre posts are set upon piers; in houses of less width, these centre supports may be dispensed with, if the upright corner posts are well braced to the sill.

Fig. 4 is introduced more with a view to show the peculiarity of treatment both of the border and plants, than as illustrative of the construction of the house. *N* is the outside ground level; *k*, a stratum of coarse material for drainage; *m* the undisturbed subsoil, and *b* the prepared border. The soil in

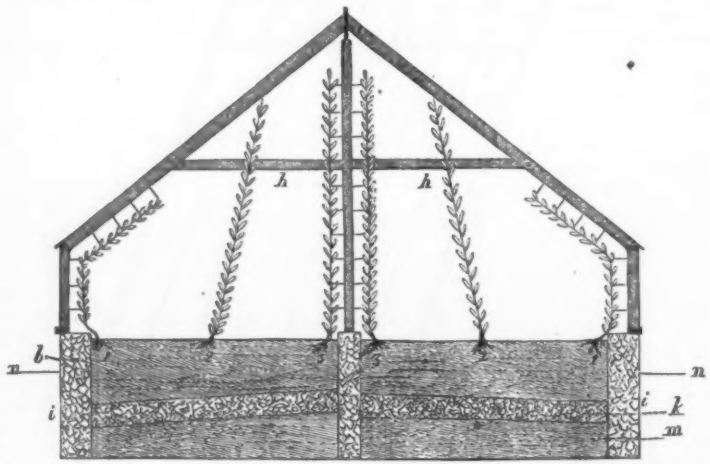


Fig. 4.

this border was taken from a corn-field and a considerable portion of sand mixed with it, so as to render it perfectly pervious to water. No manure of any kind was used in its formation, all necessary stimulants being applied in a liquid state when found requisite. The plants so far have made very satisfactory progress,—not so strong and luxuriant growths as are sometimes produced in rich borders, but sufficiently vigorous to perfect good crops. Borders made up with a large portion of decomposable material, excite a luxuriant growth which is seldom maintained for any considerable number of years; the organic matter in the soil decays and its texture becomes sodden and compact. A border made as described above will always present a

suitable medium for the ramification of roots ; and as already remarked, stimulants can be applied at any time when the plants most require it.

Borders.—It will be perceived that there is no outside border.

One of the greatest difficulties in the management of vines under glass, when the roots are is outside borders, is their tendency to prolonged growth in the fall. The heavy autumn rains on the soil, combined with the warm, growing temperature in the house, prevents the thorough maturation of the shoots, and they remain in active growth until suddenly denuded of foliage by frost. Various precautions are adopted to guard against this evil, such as covering with leaves, manure, and occasionally with glazed sash, or boards. I have obviated all this by having no outside borders, so that the roots are as completely under control as if the plants were in pots.

It may be surmised that such a small portion of soil would rapidly become exhausted, and unable to support a crop; but when we consider the heavy crops that are produced in pots we need have no fear on that score. I am convinced that extensive rich borders are not only unnecessary, but absolutely injurious so long as we do not provide for a corresponding extension of the branches. In the limited extent of a rafter in a grapery, the plants, at least after the first season's growth, are continuously subjected to a severe pinching process in order to keep anything like regularity.

A proportionate amount of foliage is indispensable to the ripening of a crop, and where there is not sufficient space to grow it, we must expect red grapes when they ought to be black.

Among the many reasons given for the non-coloring of grapes, the want of foliage has never been considered as a cause. We are very apt, in our attempts, to discover causes, to ignore anything likely to interfere with our routine practice, or infringe upon a favorite system. How often has it been advanced that it is fatal to allow grape-vines to bear any fruit the second year from planting, even although the plants are strong enough to warrant the ripening of a few branches; and, in cases where it has been allowed, subsequent failures have been attributed to that circumstance. Experience convinces me that the fruit produced on such occasions will invariably be found of the very best quality, fully flavored and matured ; and this not so much on account of supposed superior management, but from the fact, that in order to fill up space, a certain freedom of growth is allowed, furnishing a sufficient amount of foliage to thoroughly mature the crop. But when once these same plants have filled their allotted space, and no room for further extension is provided, the pruning and cutting that they have to be subjected to during growth, diminishes the foliage to such an extent that they cannot perfect an average crop; and instead of attributing the failure to its proper source, the fact of failure will be held up as illustrative of the evil effects of early cropping, with which, it indeed, has not the most remote connection.

Training.—I have frequently expressed my conviction that the European method of training grapes in houses is not the best system for this climate. When the vines are tied to trellises as sloping as the roof, the fruit hangs down clear of the foliage, and is much more liable to be affected by atmospheric changes, such as currents of air, condensation of moisture, etc., than when protected and partly covered by the foliage as occurs when trained to perpendicular trellises. The row of plants marked 1 in fig. 4 is confined to about one third of the roof; the glass above this point will throw sufficient

light for rows 2 and 3, the former of which I consider to be placed in the most favorable position for cropping. By this disposition a large training surface is gained, and more fruit may be gathered under a given surface of glass than by the common mode of trellising the roof. A house built on the ridge-and-furrow principle, covering a large surface without being more than 10 feet high at any point, and the vines trained in row to horizontal trellises, would, I conceive, be an admirable arrangement for a grapery.

Pruning.—The vines are planted about 2½ feet apart. The object in planting so closely is to cut down each alternate plant yearly, so that while one half only are fruiting, the others are producing a shoot for fruiting the following season. The advantages of this method are various. In the first place, it is well known that the best fruit is produced from young, healthy growths, both with native and foreign grapes; then the fruiting plant can be treated so as to concentrate its vigor into the crop, and the wood managed without reference to its future arrangement seeing that it will all be removed in the winter pruning. Another important consideration is its adaptation to this system of training;—the lower portion of the central rows is a considerable distance from the glass; the consequence would be that in a few years the top portion only would fruit; but this is obviated by taking up young canes annually, and if properly managed during growth, they will fruit equally over any portion of their length.

CULTURE OF THE YUCCA.

[Translated from the Revue Horticole.]

It is unnecessary to insist anew upon the beauty and ornamental merit of the yucca, but it may be useful to encourage its culture and make known the means by which it is multiplied. To accomplish this result, previous study is needed:

All the yuccas are long-lived, and originally from North America; some species grow in the warmest parts of this continent, such as Carolina, Virginia and Florida. Those species, of which the yucca-draconis or dragon-yucca, is one, and some others of uncertain name, object to cold ground, in countries where the thermometer in winter is below 4 or 6 degrees. To this limit, yuccas may in general thrive in the open air. When the temperature is much lower, without being destroyed, they "suffer," as the gardeners say; the ends of their leaves blacken and dry up, which of course injures their beauty. It is then prudent, when they are in the open air, to cover them with glass.

Yuccas are monocotyledenous, that is to say, plants budding with one cotyledon, as wheat, maize, iris and onion, etc.; their mode of growth is peculiar. The vegetation may be said to be double; aërial and under-ground. Above-ground it grows from the terminal bud, so that when this blooms, it naturally follows, that the elongation of the stem is stopped. However, the under-ground buds profit by the arrest of the aërial part, push forward their buds already formed, and hasten to throw out leaves above soil. It is not only under-ground that the new growth shows itself, but around the flower stem. When the climate will allow caulescent species, these and some others, variously divided, present a picturesque appearance.

While the upper eyes are developed, here and there buds are seen on the stalk, showing latent ones which the arrest of the terminal bud affords an opportunity for development.

Nearly all soils, provided they are not very compact, will suit yuccas, since these plants are generally vigorous; nevertheless, whenever a silicious earth, rich in organic matter, can be given it, its vegetation will always be more beautiful. For all delicate species, this is an indispensable condition. Some others, such as the yucca gloriosa, and its numerous varieties, even the yucca flaccida, can easily accommodate themselves to good garden soil. An essential condition to ensure good vegetation, and the preservation of yuccas, is that the soil, in which they are planted, be rather raised than low, or else it must be well drained so that the water can easily run off.

Although yuccas bear dryness very well, frequent and copious watering during the height of its vegetation, will be very favorable to them, and their development will be sensibly improved by it.

If what has been said above upon the mode of vegetation of the yuccas is understood, it will be easy to understand the mode of culture suitable for them. The propagation is done in two ways: by the buds produced above-ground, and by the *turions*, which are in fact nothing but buds in a less advanced state of development. The buds detached and nicely trimmed are put into pots with silicious soil, and as new as possible. The *turions* treat in the same way. However, it is better to leave these on as long as possible.

NOTES ON NEW AND SELECT PLANTS.

Agave Maculosa. Nat. Ord. *Amaryllideæ*.—A new dwarf species, received from Texas, by the Horticultural Society of London, bearing yellowish-green flowers, and small leaves from four to six inches long, of a blue-green, slightly spotted; the scape, or flower-stem, rises from a foot to eighteen inches high. (*Bot. Mag.* 5122.)

Rhododendron Chamæcistus, *L.* Nat. Ord. *Ericaceæ*.—Native of the Alps of Europe. Habit compact and very neat. Leaves very small, crowded, elliptical, acute, smooth above and below; margin ciliated with stiff, short, glandular hairs. Flowers terminal, each upon a peduncle about an inch in length; the latter covered with glandular short hairs, and based by a couple of elliptical concave bracts. Calyx very deeply cut into five acute lanceolate segments, covered with short glandular hairs. Tube of the corolla very short. Limb spreading, and divided into five ovate wrinkled lobes; the base of the limb is beautifully striated with delicate purple; the rest white tinged with rose. Filaments long, curved at the base, and there furnished with tufts of inconspicuous white hairs. Anthers oblong, dark-purplish brown. Style curved. Stigma simple.

A lovely little plant, treating us in March and April with its delicately beautiful flowers in great profusion. Being quite hardy, it may be cultivated in a sheltered shady corner out of doors, in sandy peat. But it will also give much satisfaction as a pot plant; in which case it will require the protection of a cold frame in winter, and the drainage must be most perfect. Cuttings of the young shoots, just becoming hard at the base, root pretty freely in very sandy peat in a cool frame with a northern aspect.

COLUMNEA SCANDENS. Nat. Ord. *Gesneriacæ*.—A somewhat climbing plant, bearing numerous Gesneria-looking pink flowers, from the West Indies. The blossoms measure two inches and a-half in length, and are covered with slight red hairs; the leaves are somewhat ovate, of a light blue-green, downy, and paler on the under side. It succeeds well when cultivated in a basket suspended from the roof of a moist stove. (*Bot. Mag.* 5118.)

RHODODENDRON SMITHII. Nat. Ord. *Ericeæ*.—This fine Rhododendron was bloomed, for the first time in this country, at Nutgrove, near Rainhill, in March, of the present year. It was discovered and introduced to England by Mr. Booth, who met with it on the northern slopes of the Lablung Pass, in Bhotan, where he found it growing in company with *R. Hookeri*, like which species it promises to be hardy in our climate. The blossoms, which are of a fine crimson-red color, and measure more than two inches across, are borne in close heads ; the leaves are of a dark green above, pale beneath, and measure from four to five inches in length. This fine addition to the Indian Rhododendrons has been named in honor of the late learned botanist, Sir James Edward Smith. (*Bot. Mag.* 5120.)

STANGERIA PARADOXA. Nat. Ord. *Cycadeæ*. Syn. *Lomaria coriacea*. —This remarkable plant is a native of Natal, and was sent by Dr. Stanger to N. B. Ward, Esq., by whom it was presented to the Chelsea Botanic Gardens, in 1851. Since that time it has been in cultivation at Kew. The caudex is about a foot in length, tapering to the base and terminating in a few roots ; the leaves are spreading, two feet long, by one broad ; the leaflets opposite, about twelve pairs in number ; the plant bears several green cones covered with imbricated scales ; the former measure from two to six inches in length. (*Bot. Mag.* 5121.)

EPACRIS OBTUSIFOLIA, *Sm.* Nat. Ord. *Epacridaceæ*.—Native of New Holland. About a foot high, with compact somewhat rigid habit. Leaves elliptical or linear lanceolate, obtuse, rigid, and mucronate. Flowers axillary, and solitary, sessile. Calyx divided into five acute short teeth, with a closely imbricated involucre of several greenish membranous bracts. Tube of the corolla short and wide. Limb of five bluntly ovate, concave segments, white. Stamens five, attached to the tube of the corolla, with very little of their filaments free. Anthers brown. Style erect, rigid, longer than the stamens. Stigma capitate.

EUGENIA TRINERVIA, *D. C.* Nat. Ord. *Myrtaceæ*.—Native of New Holland, and introduced to cultivation by Allan Cunningham. Dwarf, and compactly branching. Branches round ; and, when young, covered with short brownish hairs. Leaves opposite, shortly petioled, distinctly three-nerved. Inflorescence in panicles, with the short pedicels at nearly right angles with the peduncle. Calyx consisting of five short, acute, green segments. Corolla of five rounded membranous rosy-white petals. Stamens numerous, with short, very slender filaments of a pale rose-color, and capitate anthers. Fruit obovate, inclining to quadrangular. Style slightly longer than the filaments. Stigma somewhat capitate.

A greenhouse plant of excellent character, and easy culture. It bloom in February and March most profusely ; but the individual flowers are not lasting. Good fibrous loam, with a little peat and sand, is the best compost for it. It thrives well in a stove; but is most at home in the greenhouse. Propagates freely enough from cuttings in the ordinary way.—S. G. W.

EDITORS TABLE.

To Contributors and Exchanges, &c., &c.

Communications, Letters, Catalogues, Periodicals, &c., &c., intended for the perusal of the Editor, should be uniformly directed to the HORTICULTURIST, *Germantown, (Philadelphia,) Pa.* Packages by Express, &c., should be directed to the Editor, as above, by name ; they will thus reach him almost beyond a doubt.

NEW YORK HORTICULTURAL SOCIETY.—We are pleased to receive the circular of this society regarding the Fall Exhibition of 1859—the 14th, 15th and 16th of September. There are premiums consisting of silver plate, silver medals, money and certificates. We shall be glad to hear on this occasion that the merchants and their families turn out to patronize the Society. In London, fashion, from the queen to the millionaire, gives *eclat* by personal attendance, and what is better, they all seem to understand the articles on the tables, and to appreciate the excellent. New York should wake up to the importance of this matter, if she expects to gain full credit for the love of nature in her efforts to have a grand Park ; without it she is liable to be accused of mere ostentation.

SUMMER APPLES AND PEARS.—A liberal display of early apples covers our table, *two deep*, at the moment we pen this, from the nurseries of Ellwanger & Barry ; and certainly if such things "can be" in Rochester, they ought to be producible elsewhere.

Benoni, is a nearly round apple, not large, of a deep red skin, and an agreeable sub-acid flavor which will give satisfaction to most tastes.

Early Harvest,—the delight of all boys who have ever tasted it, no less than their older friends, —should be cultivated by every one who has an orchard. It does not keep long, but coming so very early it is deservedly a favorite.

Duchess of Oldenburgh. A September apple of Russian origin, highly esteemed ; it is handsomely streaked, and good looking.

Sine-Qua-Non. A fair apple, with a sprightly and delicate aroma.

Tetofsky. Another Russian as its name implies, to which we are inclined to give a high character. The books say, "Succeeds at the North."

Early Strawberry. A small but very handsome fruit, which succeeds the Early Harvest in July. Rich and excellent.

Primate. Refreshing, sub-acid. Good.

Large Sweet Bough. This is a very handsome and attractive apple which we should recommend to every one.

Summer Rose. An early August apple, of fair quality, but deficient in richness.

Red Astrachan, needs no commendation at this date. *Early Joe*, has a taste resembling a pear. September.

Summer Hagloe, a cooking apple of value. If our climate would produce such superb specimens, and it *may* perhaps if th esame care and attention is given as Messrs. Ellwanger and

Barry give, they surely are well worthy of trial. The display has been really a great treat in our vicinity, where unfortunately, we have to import our apples at high prices.

Osband's Summer. For an early pear is quite an acquisition and these specimens very superior.

Beurré Gifford. This fine pear is coming into great favor, and justly so. Specimens large and fine. We give, however, for our climate a preference to the *Rostizer*, which is as early.

THE ROOT.—The quantity of root is always observed to increase with the poverty of the soil in which it is growing.—Duhamel found the roots of some young oaks, in a poor soil, to be nearly four feet long, though the stem was not more than six inches. Every one may have noticed this familiarly instanced in *Poa annua*, the grass most commonly growing on a gravel walk, its stem minute, its root a mass of widely-extending fibres. The cause of this is evident: the nourishment which is required for the growth of the plant, can only be obtained by an increased, widely-extending surface of root, and, to form this, more sap is often required than the plant, owing to the poverty of the earth, can obtain for itself; in that case a soil is sterile, for the plant must evidently perish.

A root always proceeds in that direction where food is most abundant; and, from knowledge of this fact, we should be circumspect in our mode of applying manures, according to the crop and object we have in view. We know a soil which, being shallow, never produced a carrot, or a parsnip, of any size; but almost every root consisted of numerous forks thickly coated with fibres. Digging two spades deep produced no material advantage, the gardener applying, as usual, manure to the surface; but, by trenching as before, and turning in a small quantity of manure at the bottom, the root always spindled well, grew clean, and had few lateral fibres. For late crops of peas, which mildew chiefly from a deficiency of moisture to the root, it is an object to keep their radiculæ near the surface for the sake of the light depositions of moisture incident to their season of growth; hence it will always be found of benefit to cover the earth over the roots with a little well-rotted dung, and to point it in lightly.

If it be desirable to prevent the roots of any plant travelling in a certain direction, the soil on that side should be excavated, and the cavity refilled with sand or some other unfertile earth whilst the soil on those sides of the plant whither the roots are desired to tend should be made as fertile as is permissible with its habits.

To keep the roots of trees near the surface, gardeners make an impervious substratum beneath their borders, either by ramming a bed at the requisite distance from the surface, or by placing there an asphaltic mixture of hot coal tar and lime rubbish. Roots coming in contact with these do not turn aside, but immediately cease extending in length, and produce laterals.

NEW RESOURCES.—Constantly new resources for useful articles are discovered; another chemical product is *inocarpine*, derived from the chestnut of Tahiti—*Inocarpus edulis*. The sap of the tree exudes and forms a ruby-red gum on the bark; and this gum properly treated yields nine colors, from carmine, through green and blue, to black—further resources for dyers. Professor Nicklés has been at work upon the fruit, *Ligustrum vulgare;* the black berries he finds to contain glucose, raisin-sugar, and a waxy substance of a beautiful crimson color, to which he gives the names of *leguline*, which makes a good dye in different shades of crimson and purple, and it is also useful as a test for pure water. Experiments made in Algiers show that the leaves of the castor-oil plant are good food for silkworms, and that the oil may be deprived of its medicinal quality, and used for lighting and alimentary purposes, and the fibres can be worked for hemp.

ORCHARD HOUSES.—"Fox-Meadow" gives some practical hints in the present number, regarding Orchard Houses; one of his remarks applies particularly to planting out in the border. Now this may answer very well, but the best examples of fruit-bearing small trees

have been in pots, (boxes will answer) and these pots are brought out and plunged in the ground when the fruit is perfectly established. The curculio has then no chance with them. We have lately seen perfect success with this mode, and peaches of almost unheard-of excellence; Stanwick nectarines, plums, apricots, cherries, and figs, in the utmost perfection, were a regular dish, to say nothing of the finest grapes. The operation is more simple and of more easy accomplishment than most persons would imagine. In one case, observed so lately as the first of August, a beginning was made with peaches and nectarines in pots, the trees poor stunted affairs, and not prepared for their new quarters by previous training, and yet the result was a superb crop; so that with even common care we are to have the finest fruits both for the amateur and the market or shop. And here it must be remembered that a small family does not want a bushel a day; a variety and excellence is the desideratum. A few High-bush or Lawton blackberries, and the same of Catawissa raspberries, and so forth, give a sufficient taste; no private family would want a market basket full every day of even the finest peaches or nectarines, but a few and those of superior excellence every one desires, and every one who will take the trouble may now have them.

GERANIUMS STRUCK FROM ROOTS.—The accompanying is a specimen of propagating this class of plants by roots. I don't know if it is generally known. I find it very useful. Roots cut into short pieces at any time of the year grow just covered with earth. If put in in the autumn they will push in spring; any time during summer they are up in a few weeks.—*W. W., in Gard. Chron.*

DATURA HUMILIS.—This is rather a rare and ornamental flowering greenhouse shrub, of erect habit, with rich, ample green vine-like foliage, and large, conspicuous drooping double flowers, nearly nine inches in length, of a rich nankeen yellow color, having a tubular trumpet-shaped outline, with the two outer series of petals elegantly recurved backwards. The terminal growth of this species should be encouraged to grow erect, and left to throw out its lateral branches as it advances in strength. It will form an elegant and unique object in bloom, being well adapted for planting in conservatory or greenhouse borders, or for plunging out after the vigorous spring growth is obtained, with other allied species of Datura, or Brugmansia, in sheltered borders of the flower-garden, to be returned for blooming in the hothouse or conservatory during the late summer months.

IMPROVING WHITEWASH.—The grounds of a beer-barrel added to quicklime and water will greatly improve it for a wash. Tallow added to, and stirred up with the lime when slacking, will render the wash more durable.—K.

NEGLECT OF THE APPLE-TREE.—Our correspondent T., of Torch Hill, Georgia, gives, in the *Southern Cultivator*, the following picture of a neglected apple-tree he has in his memory; it represents, too exactly, the condition in which they are left by the careless:—

"The roots tortured by the aphis, and torn by wild horses (and plows); the trunk barked by rabbits, bored by borers, pecked by wood-peckers, blistered to mortification by the sun, and plastered to suffocation by the scale insect. The forks, the home of caterpillars, and the leaves

their sustenance; the limbs moss-covered; and the fruit—never failing, and never, by any possible complication of accidents, allowed to mature. Then, coming down, we get an inventory of its personal property. One tin coffee-pot: one earthen tea do.; various specimens of domestic crockery, some, too,—to particularize: three pair brogans; specimens, each, of plow, hoe, broom and skillet handles; skeleton remains of ox, principally ossa femoris and pelvic bones; do. of horse; do. of cat, entire; one "battling stick;" sundry bits of paling; articles of wearing apparel; clubs in quantity, from a walking stick to a martinpole!"

PENNSYLVANIA HORTICULTURAL SOCIETY will hold an exhibition at Concert Hall, Philadelphia, on the 20th, 21st and 22d of September. As it is desirable that novelty and beauty should be combined, all persons having fine plants and fruits are desired to correspond with Mr. William Saunders, Chairman of the Committee of Arrangements.

NEW PEACH.—The able Secretary of the Pennsylvania Horticultural Society has sent us the new seedling peach, raised by Mr. E. W. Keyser, 9th Street, below Vine, Philadelphia, which is a promising acquisition. In size and flavor it is between the Strawberry and the Rare-Ripe peaches and of most delicious quality. Mr. Keyser offers grafts to any applicant.

THE PROSPECTUS OF THE ARCHITECTS AND MECHANICS' JOURNAL, issued by Baillère Brothers, 440 Broadway, promises a new and useful periodical, at $3 in advance.

LIEBIG'S MODERN AGRICULTURE.—The English edition of this work has been forwarded to us, and we shall take an early opportunity of making our readers acquainted with portions of its contents.

RICHARD PETERS, of Atlanta, Ga., will accept our thanks for favor received.

ANNUAL REPORT OF KEW GARDENS.—Sir W. J. Hooker's annual report on these justly celebrated gardens, has been issued in pamphlet form, and a good synopsis will be found in the *Gardener's Chronicle* for July 2, 1859. The duties of the employés are defined in such a manner as to show that they have no sinecure. The greatest number of persons admitted in one day to the Gardens (where they have free access to all parts), has been 13,761. The best attended months, as may be supposed, are June, July, and August, during which we have numbered so many as 267,223 persons. The fewest visitors are in November, December, and February, when they have been so low as 4,679.

A good regulation is mentioned in the following paragraph:—The public are forbidden to carry baskets of provision or parcels into the Gardens, or large reticules which may excite suspicion, or similar articles which facilitate the concealment of specimens.

The Palms unquestionably stand unrivalled; as do the Ferns, particularly the Tree Ferns; the Cactuses, Agaves, Aloes, and other succulent plants, and the Bananas. Among the last is the most extraordinary plant in all our collections, the gigantic Abyssinian Banana (Musa Ensete), described and figured by no author, save the celebrated Bruce, and now first introduced to Europe through W. C. M. Plowden, Esq., the British Consul at Mussowah. This striking herbaceous plant has attained in the Palm stove, in five years' time, a height of more than 30 feet, with a stem of 7½ feet in circumference, and leaves, of which the blade, independant of the stalk or petiole, is 16 feet long! It also now shows promise of a flower-spike, corresponding with its foliage. The Orchideous Plants, under a recently-appointed and very skilful special cultivator, are improving remarkably. The singular Pitcher Plants, the noble Zamias, the Cycads and their allies, the Rice-paper Plant of Formosa, the wonderful Lattice-Leaf (Ouvirandria fenestralis) brought by the Rev. William Ellis from the Lakes of Madagascar, the Traveller's Tree (Urania speciosa), described by the same writer, the Lace Bark of Jamaica, the rare Cinchona, or best Peruvian bark, the noble collection of Sikkim Himalayan Rhododendrons, to say nothing of objects of lesser note, particularly of the almost innumerable, hardy and out-of-door plants, have proved highly attractive to all.

Arboretum.—The peculiarities of the climate of England render it singularly favorable for

the growth of a large collection of the trees and shrubs of temperate regions, from almost all parts of the globe; and hence arose the eminent desirableness of attaching to the Royal Gardens such an Arboretum as should be worthy of Great Britain, and serviceable to its extensive possessions and foreign relations. In pursuance of this object, the best suited localities in these grounds have been devoted to a classified collection of hardy trees and shrubs, amounting to about 3500 kinds (including marked varieties), and they are mostly in a thriving condition. Some years must however elapse ere the general effect of the whole can be fully seen, and the groups of different Pines, Oaks, Planes, Beeches, Ashes, Birches, Poplars, Willows, &c., each forming a clump of allied, but distinct kinds, will produce a beautiful variety of foliage in well-disposed masses, enabling also the visitor to compare the character of a vast number of carefully-named trees adapted to the climate, and to judge of their effect in the lawn, the park, or the forest.

Nurseries.—There are two in the Arboretum; one specially intended for planting the Kew grounds with ornamental trees and shrubs, and rearing a stock for exchange; the other (formed at the desire of the First Commissioner in 1855), to supply the metropolitan parks. Both are profitable; and the latter has proved to be a very useful part of this establishment. In 1856 it furnished 1010 trees (chiefly Planes and Elms); in part 1857, 4100 trees; and in 1858, 2475; the sizes varying from 6 to 14 feet; while the Pleasure Ground Arboretum sent to the parks of the metropolis, with the sanction of the Board, in 1857, 9289, and in 1858, 2814 trees and shrubs of great variety, besides furnishing the grounds at Kew with no fewer than 18,000 in the year just closed.

A magnificent Herbarium and Library are among the attractions:—Many authors have taken up their residence at Kew for weeks, and even months, in order to acquire that information which, it may be safely said, is nowhere else to be so conveniently or fully obtained. Add to to them the casual visitors who come (in always increasing numbers) from the metropolis and the provinces, &c., and who are engaged in botanical, medical and economical publications, and some idea may be formed of the importance of this branch of the Kew establishment; to say nothing of the inquiries continually made by letter, inquiries that always meet with prompt and encouraging attention. After these statements, avouched by the acknowledgments of the authors in their respective works, it cannot be denied that the Kew Herbarium and Library, especially taken in conjunction with the noble collections of living plants in the Garden, and the products of plants in the Museums, are admirably adapted for the study of botanical science. And there is the great and inestimable privilege, not attainable in the capital of England, that the collections do not suffer from dust and coal-smoke, which are destructive both to paper and specimins.

The Economical Museum is one of the great features, and is now probably the most useful thing of its kind in the world. It has gradually grown to great size and importance, and here information respecting all vegetable growths useful to the world, are exhibited in all stages, from the rough bark to the finest textile fabric, and England by this school is enabled to adopt and apply to manufactures everything that can be valuable for the use of man. When shall we imitate this great and useful Garden.

THE NEW GRASS.—The following Memorandum, says the *Cottage Gardener*, sets all speculations about the "new Grass" at rest; it is taken from De Candolle's "Prodromus:"—

"SPERGULA PILIFERA (*D. C., Fl. Fr.* 4, *N.* 4391).—Leaves opposite, linear, awned, rather stiff, glabrous, in bundles; stems creeping, branched, tufted; peduncles very long: petals twice as large as the calyx; seeds egg-shaped; hardy perennial; native of Corsica, on the highest mountains; flowers white; July and August; plant three inches high."

Awned Spurry, or literally, Awn-bearing Spurry, is the proper English name of the "new Grass." Some people put the stress or accent on the *u*, which is wrong, the accent is on the *e*—Spérgula. Four inches apart every way will be the best distance, but some will plant much

farther apart, and plant again between; but, as in other things, the more haste the less speed. The grand secret is, to have an immense stock of plants before you begin to "plant out;" but out with them in the open air as fast as they are hardened off, if you have them from cuttings, or as soon as they are fit to handle, if they are seedlings in seed-pans. There are so many square feet in an acre, and so many square inches in a foot; and if you mean to plant at four inches every way apart, you can soon cast up how many plants would plant an acre. From a good stock to begin with, a boy, or a girl, or her mother, and one of the improved Waltonian Cases, without candle or lamp, could propagate in June, July and August, a sufficient number of plants in one month to plant an acre of ground. That is some data to go upon. Some would do less, and some three times as much; and some will not try, or believe.

CUTTINGS.—M. Loiseau recommends that the usual method of striking cuttings should be altered. When, he observes, a cutting is put in perpendicularly, the sap, whose natural tendency is to rise, is expended in pushing forward a new bud instead of forming a root. But if a cutting is laid horizontally, or even with its lower end higher than the upper, that is not the case; the sap prefers to move toward the higher end, or, at all events, is evenly distributed between the two extremities. This causes the callus to form so rapidly that if the cuttings are put into a warm place, eight or ten days are enough to secure its formation, or even that of roots. Autumn-struck cuttings, taken off a little before the sap ceases to move, and treated in this manner, form their callus so quickly that they are ready for planting out before winter. In winter, it is necessary to put in cuttings in a gentle heat (une couche tiede), or beneath leaves deep enough to keep out the frost, and even then a callus will be found to have formed by spring-time. As for cuttings taken off in May, they must have more heat, such, for instance, as is afforded by a hotbed, or a hothouse, and they will then take, in many cases, in a few days.

IT WAS the opinion of Lampadius that the earths contained in plants are merely the effect of vegetation, and altogether independent of the soil in which they grow. The experiment was as follows:—Five beds, four feet square, by one foot in depth, each containing a pure earth,—alumina, silica, lime, magnesia, garden mould, and each mixed with eight pounds of cowdung, were sown with rye. The produce of each was speedily reduced to ashes, and the same principles were found in them all, particularly a portion of silica. Whence came the silica in the bed of alumina? According to Lampadius it was the result of vegetation. But Saussure, after Ruckert has shown that cowdung contains a portion of silica. (*Sur la Veg.* chap. ix. sect. 3.) Hence the substance which Lampadius could not account for but by means of vegetation he had supplied with his own hands. It is now known that the earths are partially soluble, some of them in pure water, and all of them with the aid of acids; so that we may fairly presume that they are taken up in solution by the root, and converted to the purposes of vegetation. Not that they are capable of affording any considerable degree of nourishment to the plant, but that some plants seem to be benefited by absorbing them. The grasses have their stems thus strengthened, and the Equisetaceæ and the Palms have their stems or leaves better fitted for the purpose of art. The leaves of Palms make a substantial thatch for covering houses, owing to the silica they contain; and the Dutch Rush is made use of to polish even brass.

GERMAN STOCKS.—The *Illustrirte Garten Zeitung* says, that the German seedmen produce the fine double varieties so well known by growing the plants in the richest soil, watching them, even from infancy, to see that they receive no check to their luxuriance, either through want of water, or from any other cause, until the seed is fully matured.

GUANO LIQUID MANURE.—Ten gallons of water will readily dissolve, or keep suspended in a state of minute division, about 50 lbs. weight of guano. When applied to plants, not more than five ounces should be added to that quantity of water. If it is made stronger, it injures or kills the plants to which it is applied.

SHEEP'S-DUNG, if employed for making liquid manure, should be a peck to thirty gallons.

SULPHATE OF AMMONIA, and any other salt of ammonia, must not be used more than a quarter of an ounce to each gallon.

The rule applicable to all these liquid manures is—*Give it weak and often.*

THE PENNSYLVANIA STATE FAIR, will take place at Philadelphia the last four days of September. The list of premiums is very extensive, and we predict for this fair the most eminent success, embracing as it does in the programme the greatest variety of interests, judiciously set forth.

ANSWERS TO CORRESPONDENTS.

SULPHUR FOR MILDEW.—M. Frederich Seitz, of Easton, Pa., in a letter to a friend of his, which has been sent to our table, says, "I see that the *Horticulturist* passes over the advice of Mr. Rivers, in the Orchard House essay, where Mr. R. recommends preventing or curing mildew by fumigating with lime and sulphur, without a word of caution, after my sad experience last year, when I came near destroying all my vines in two houses by the same process; if I did use two instead of one handful of sulphur, it still proves the great danger of the process, and I think should not be passed over without a word of caution." This may be very true, and we put it now on record, though with these remarks. No other instance of such destruction has come to our knowledge, and all should confide entirely in the statements of Mr. Rivers and other practical men. Mr. Seitz informed us at the time, of his calamity; but as he stated that he put his lime and sulphur into old white-lead kegs, we had no doubt of the cause of the injury he experienced. Any chemist will inform him of the nature of the gases which would be evolved by the mixture of unslaked lime, sulphur and white lead. Let Mr. S. convince himself of the efficacy of the two ingredients alone as recommended now on all hands, and use them as directed, and we think he will forgive the *Horticulturist.*

FAWKE'S STEAM PLOUGH is esteemed an eminent success. We must refer C. T. to the *Agricultural*, the daily and weekly press, for full descriptions, and to exhibitions of this capital American invention where trials will be made.

C. P. HALE, Kentucky. Your first flower is *Hedysarum prolificum*, and the yellow one is *Rudbeckia nirta*. There is no "Grape Shrub" such as you describe. Send a leaf and a flower, or the fruit.

M. W. S.—The pears sent are Bloodgood and Rostizer, both highly esteemed. The latter approaches, perhaps, more nearly the Seckle than does any other, and it is a prolific bearer.

DANIEL MILLER, Carlisle, Pa.—Box of fruit delayed on its route, arrived at last, but the contents unfortunately too far gone to be examined.

J. R., of Hampton, and G. N. B., Baltimore.—The subject you inquire about has been exhausted in our columns, and we must refer you to former volumes, where numerous illustrations will give the approved plans for rustic houses, arbors, &c.

JOSEPH LENNIG, ESQ.—Your Apricots were very superior.

CATALOGUES &C. RECEIVED.—Wisconsin State Agricultural Society. List of Premiums and Regulations for the Ninth Annual Fair, to be held at Milwaukie, Sept. 26, 27, 28 and 29. These premiums and regulations are admirably conceived, and will be properly carried out.

New Jersey State Agricultural Society. List of Premiums and Regulations for the Fifth Annual Exhibition to be held in the City of Elizabeth, on the 13th, 14th, 15th and 16th, days of September, 1859.

Charter, Rules and Regulations of the Rosehill Cemetery, Chicago, Illinois. The Cemetery has been dedicated, and is in the full tide of success; it was much wanted, and is in a situation which will make it the pride of the citizens.

Testimonials to Henry C. Carey, Esq. This is a collection of speeches on protection to

American industry, of which Mr. Carey is the able exponent, and is also an account of his visit to the industrial regions of Pennsylvania, which seems to have been a perfect ovation. Mr. Carey is now in Europe.

Strictures on a Review of Mr. Carey's Letters to the President. From the Merchants' Magazine.

Grape Culture and Wine Making in the South. By A. de Caradeuc, of S. C. Augusta, Ga, D. Redmond, 1859. Second edition. A valuable pamphlet.

No. 1. Descriptive Catalogue of Fruit Trees at the Toledo Nurseries. By B. Fahenstock & Sons, 1860. Very complete and valuable.

Wholesale Catalogue of the Cherry-Hill Nurseries, West Chester, Pa., Hoopes & Brother.

WEBSTER'S PICTORIAL DICTIONARY, unabridged, and illustrated. This valuable work has now assumed a price and dimensions to suit the largest market. It should be a household treasure in every family. Whatever may be thought of its mode of spelling certain words, it is authority on so many points as to be indispensable. The illustrations amount to 1500 on various subjects, including natural history.

Guide Book of the Hudson River, etc. Guide Book of the St. Lawrence. These two little brochures will be valuable to all travellers, and stay at-home people might expend twenty-five cents for the purchase of each much worse than in possessing works so full of plates and information.

Pear culture in the South; an essay written at the request of the Aiken Fruit Grower's and Horticultural Association of South Carolina. By L. E. Berckmans, of Augusta, Ga. A very clever essay in which the author contends that the South is to be our fruit producing country; and he maintains that Pears can be cultivated to a profit under certain conditions.

Wholesale trade circular of C. Reagles & Son Schenectady, New York.

Premium List of the Sixth Cattle Show and Fair of the Connecticut State Agricultural Society; to be held at Brewster Park, New Haven, on the 12th, 13th and 14th of October, 1859.

Miscellanea.

WATER.—As no seed will germinate unless a certain degree of heat is present, so also does it require that a certain quantity of water be in contact with its outer skin or integument; and this is required, not only to soften this covering, and thus permit the enlargement of the cotyledons (seed lobes) always preceding germination, but also to afford that water to the internal components of the seed, without which the chemical changes necessary for the nutriment of the embryo plant will not take place.

Pure water, or some other liquid of which it is a large constituent, is absolutely necessary: no other fluid will advance germination a single stage.

Liebig, from actual experiment on a large scale, states that both rain and snow contain ammonia; and if there be only one-fourth of a grain in each pint of water, the annual deposition from the atmosphere would be more than sufficient, on half an acre of ground, to give all the nitrogen contained in the vegetable albumen of 150 cwt. of beet root. Rain water also contains a peculiar organic substance, analogous to the extractive matter and gluten of plants, though differing from them chemically. To this substance Dr. Daubeney has given the name of *Pyrrhine*. Traces of salts and oxides have also been found in rain water; but, compared with all other naturally produced, it is so pure, and so abounds with the gases beneficial to plants, that none other can equal it for their service. That obtained from ponds or springs

often contains matters offensive or deleterious to plants. Those known as hard water, containing in excess salts of lime or magnesia, are invariably prejudicial, and pond water is scarcely less so. If it be stagnant and loaded with vegetable extract, it is even worse than hard spring water. These last named, if obliged to be employed for tender plants, should have a pint of the ammoniacal water of the gas works mixed thoroughly with every sixty gallons, an hour or two before they are used.

If pond-water be clear, and not only not loaded with putrid or mineral matters, but containing *Confervæ*, or other growing aquatic plants, it may then be used very beneficially for the watering of plants. This is ascertained from long experience, and it is explained by the fact, that such water contains an excessive amount of oxygen gas. This excess is greater in proportion to the brightness of the sunshine, and the length of time to which the water has been exposed to it. During such bright weather, the aquatic plants give out oxygen most abundantly. M. Morren found, that in the afternoon of a sunshiny day, the oxygen in such water amounted to sixty per cent. of the bulk of the air which it contained.

Water being such an essential application to the seed, as well as to the growing plant, it may be observed that the source from whence it comes is by no means immaterial. The best for the gardener's purpose is rain water, preserved in tanks sunk in the earth, and rendered tight by puddling, or bricks, and cement. To keep these replenished, gutters should run round the eaves of every structure in the garden, and communicate with these tanks. Every 100 cubic inches of rain water contain more than four cubic inches of air, of which more than half are carbonic acid gas, and the remainder nitrogen and oxygen, in the proportion of sixty-two of the former to thirty-eight of the last named.

A seed placed in a situation where it is supplied with the desirable degrees of heat, moisture, and air, begins immediately to enlarge in size. This is occasioned by its absorbing moisture, which, passing into the cotyledons, causes their immediate increase in size. The rapidity of this process is remarkable, and warns the gardener from disturbing the seed after it is once committed to the ground. A few choice peas, from which to raise stock, being sown, accidentally, in ground devoted to another crop, were removed after twenty hours, and were not again committed to the ground for some days. Not one of them produced a fruitful plant, and only two or three vegetated.

Moisture is absorbed, and causes the immediate enlargement of the parts of the seed; and this moisture, though it will and does penetrate through the surface of the integuments, yet is chiefly imbibed through the hilum or scar. It passes to the cotyledons, causing their enlargement, and setting in motion their elaborating powers for the nutriment of the radicle and plantlet; for, if they are removed, or if they have been injured by insects, the seed does not germinate; and if they are removed even after the radicle is developed into a root, the plant's vegetation ceases.

Lastly, if seeds of plants loving a fertile soil be sown along the partition, dividing a vessel into two portions, of which one portion is filled with rich earth, and the other with sand, though both portions are equally moist, equally loose, and equally warm, all the radicles will direct their course into the fertile soil.—*The Science of Gardening.*

Gossip.

ROOT-PRUNING.—Root-pruning of fruit trees should be done early in the autumn, and not in the spring. Nor can we advise you as to whether such root-pruning would tend to the production of fruit-buds in your trees. It would be useless, unless the trees are over-luxuriant. Taking up the trees in autumn, and planting them on mounds of lighter soil placed on the surface

of your clayey ground, would be better treatment, probably; but we have not sufficient information from you on which to found an opinion.

NEW MODE OF CAUSING SEEDS TO GERMINATE.—One of the seeds, that of a Cassabar Melon, I vegetated in less than 24 hours by my "patent" process, which I have found eminently successful in a variety of instances when all other plans have failed. It is simply by enclosing them in a small piece of flannel soaked in a weak, warm solution of oxalic acid, and squeezed nearly to dryness; this is enveloped in two or three folds of oil-silk tied up and suspended by a string hung over the neck, so that the little packet may descend just to the pit of the stomach, where the heat of that part in an incredibly short space of time induces germination. The seed to-day, after 38 hours' confinement in this situation, has a rootlet of 1 inch in length. And thus have I had seeds sent me from good hands who could do nothing with them, commence growing from 24 to 48 hours after being put to nurse in the above-mentioned mode and position. —*Thomas Ingle, in Gardener's Chronicle.*

ORCHARD HOUSES.—I quite agree with your correspondent "J. D.," in reference to his remarks as to orchard houses, which, as he says, are still in their infancy in the north. I have erected a small one some 21 feet long by 8 feet wide, and whatever others may say as to the system recommended by Mr. Rivers, I must confess that I am perfectly satisfied with the results of my small experiment. I see and hear on all sides, that everything is spoiled by the severe frosts within the last four or five weeks, and I am quite aware that all fruit in the open air is destroyed in my neighborhood; but in my little orchard house I have the pleasure of looking at Peaches, Nectarines, Apricots, Pears, Cherries, Plums, Figs and Grapes, in perfect health and vigor, the fruit setting beautifully, and in no case touched by frost, though almost everything outside in the same garden is destroyed. I am of opinion that the system of orchard house cultivation, introduced by Mr. Rivers, deserves the notice of every man who wishes to have a secure crop of fruit, especially if, like me, he is situated in a northern country where he may expect such frosts as have fallen to our lot within the last month. I may mention that my orchard house, the length and breadth of which I have given, is 7 feet high, and that it cost something under 15*l*. *A Constant Reader, R., Roxburghshire, N. B.—Gardener's Chronicle.*

SALES OF ORCHIDS, FERNS, AND OF FREMONTIA CALIFORNICA.—Mr. Stevens, at his auction rooms, King Street, Covent Garden, sold on the 17th, 149 lots of Orchids and Ferns, besides the plant above named, which was thus described in the catalogue—"By order of the Council of the Horticultural Society of London.—*Fremontia Californica*, a new and unique shrub (Torrey in Smithsonian Contributions to Knowledge, vol. v., p. 2); 'Of this most remarkable plant, a solitary individual was raised in 1851, in the garden of the Horticultural Society, from a seed received from Mr. Robert Wrench. In April 1854, it produced flowers for the first time, as large as those of *Trollius Asiaticus*, brilliant yellow inside, apricot color outside, with the addition of some cinnamon-colored down; and their substance was so thick, that each flower remained in perfection for weeks.'" It sold for £37 16*s*.

The following are the prices for which some of the Orchids were sold:—Ærides Lindleyi, £6 10*s*.; Ærides nobile, £9; Æ. Schróderi, £31; and another specimen, £27; Phalanopsis amabilis, £12 10*s*.; Cymbidium eburneum, £14; Ærides maculosum major, £18; Vanda suavis, £13 16*s*.; Ærides Lobbii, £17 10*s*.

The highest prices given for the Ferns were:—Lasteræa villosa, £3 5*s*.; Gleichenia speluncæ, "very rare," £3 10*s*.; Cyathea arborea, "very rare," £3; Gleichenia dichotoma, £1; Todea pellucida, £1; Diplazium brevisarum, £1 16*s*.

The Orchids and Ferns sold, altogether, for about £470.

STRONG CLIMBERS FOR A GREENHOUSE.—Habrothamnus elegans, Mandevilla suaveolens, Passiflora cœrula, P. alata-cœrulea, P. Colvillii, P. edulis, Tasconia pinnatistipula, T. mollissima, Lapageria rosea, Plumbago Capensis, Kennedya nigricans, K. Marryattæ.

WEAKER CLIMBERS.—Brachysema latifolium, Sollya heterophylla, S. linearis, Bignonia Chirere, Jasminum volubile, Kennedya coccinea, K. rubicunda, K. Comptoniana, K. dilatata, K. heterophylla, K. monophylla, Jasminum grandiflorum.

THE ROYAL COMMISSIONERS of the London Exhibition of 1851, have offered twenty acres of land to the Horticultural Society of London, as a site for a horticultural summer and winter garden, with Italian arcades, to be constructed at a cost of £100,000, one half of which sum is to be provided by the commissioners, and the other half by the society. The Queen offers a donation of £1,000, and Prince Albert £500. Her Majesty will further make the Prince of Wales and the young Princes and Princesses life members. The Princess Royal of England has also announced her intention to become a life member.

ANTS.—However these pests may plague you, all you have to do, says the *Midland Florist*, is to make deep holes with a crowbar, say two or three feet, and carefully withdraw the instrument, so that the hole may be open; thousands, aye, millions of these little pests will fall down them, and not get out any more; in fact, the place will in time be completely cleared. When they congregate away from plants, boiling water will settle their account quickly; but the former method will do anywhere if the ground will allow of holes kept open. In some light soils it is difficult. If you can do it no other way, soak it with water first. Guano is also effectual.

Correspondence.

MR. HORTICULTURIST:—I have thought that some of your readers might be pleased to know that Tritonia Uvaria can be readily propagated from seed. In November, 1857, I received per mail, from Mr. Wm. Thompson, seedsman, Ipswich, England, a small packet, which he had just obtained from the Island of Guernsey, where this fine plant has become naturalized, along side of the charming Nerine Sarniensis. I immediately sowed some of them in a pot in which I had just set a Dutch bulb of Roman Narcissus for winter blooming. They came up promptly, and grew all winter in the parlor window, making two small leaves each, without interfering at all with the big bulb, which distinguished itself in a most satisfactory manner, as a subject well adapted to this kind of ornamentation. In the spring I turned all together into the open garden border. The Narcissus leaves continued to grow strongly till the first of May, when they ripened off, leaving the young Tritonias to take care of themselves, as they best could, with very little attention from me; for then, the interest which has since been excited in this plant by frequent notices in almost all the *Horticultural Journals*, was not awakened. M. Thompson having only remarked that it might be suited to the climate of Georgia, though neither it, nor the Guernsey Lily, did well in the open ground in England—or at least would not ripen seed there.

All the approach of frost in autumn, I lifted my young plants, potting thence in one 8-inch pot, and placed it in a cold frame, when they made such growth, and so filled the pot with their tufted, long, and rather coarse, yellow, fibrous roots,* that I shifted them singly into pots of the same size, and about the first of April I turned them into the open garden. They resist finely our sun and drought, and I look confidently to their flowering before summer is out—probably about in time with the tuberose. That they are approaching maturity I infer from noticing that some of them begin to throw up suckers. Some accounts ascribe to the flowering stem the height of a man, (5 or 6 feet) and robustness equal to that of the common Day Lily (Hemerocallis fulva). But I shall be well content if mine attains the size and beauty of the plate in Redouti's Liliacées'—about 3 feet.

* This can scarcely be called a bulbous plant.

I have a fine clump of Pampas grass, which stood out last winter with only the slight protection of an old and ragged bast mat thrown over the top of it during the hardest weather; and I think it would have survived if quite unprotected, our winter having been milder than common. The tips of some of the leaves were killed back about half their length.

If is only within the last ten days that some of the stems have begun to start for the race of flowering, I can count now some six or seven sheaths which are pushing strongly above their fellows, and certainly are swelling notably, but if they ever attain the bamboo-like stature stated in Loudon's Encyclopœdia of Plants (2d supplement) which is generally held to be pretty good Botanical authority, viz: 40 ft!—the metamorphosis must indeed be *miraculous*—as I think Dr. Lindley says it *is*. Hitherto our Gama grass (Tripsacum dactyloides) is the biggest swell among our grasses, and at this moment stands considerably taller than the Pampas.

Enclosed please find a flower sprig of the Polygonum Teretifolium. Although brought to notice by Mr. Robert Nelson several years ago, very little attention has been paid to it; but a more lovely thing, in its way, is not likely to be discovered very soon in *our* woods. How it should have been overlooked so long, is a mystery to me. I fear it will prove rather intractable under cultivation, as any intermixture of common garden mould in the sand where one attempts to grow it, proves a deadly poison. Hence its scarcity, and the reason why I cannot now send you a specimen with foliage, which would give you a better idea of the plant. If you wish one for the examination of a botanical friend, I will endeavor to procure and send it to you. [We shall be glad to receive it. The flower is very remarkable.—ED.]

M. A. W., *Athens, Ga., July* 22.

AN HOUR IN THE VINEYARD, *by Judge Reid.*—In my former communication I promised to write again, when the *blight* of June, and rot of July had passed away. The month of June opened with the vineyard in excellent order, the fruit well set, and everything indicating an extraordinary crop; but the frost of the 4th came in all the severity of the month of March, and although only slightly injuring my vines, destroyed the hopes of many other amateurs, who had embarked in the culture of this luscious fruit. During the latter end of the month of July, I visited several vineyards in the adjoining county of Franklin, more or less affected with the rot, and many wholly destroyed by the frost, for the present year's crop.

The mildew or blight had done almost no damage, but a yellow bug not unlike the lady-bug stung a large number of the under bunches, leaving a blue wound on the berry, causing it to wilt and fall off, as a general thing. In some vineyards the sour-rot had destroyed every vestige of a crop, and now nothing was to be seen but decaying fruit and yellow leaves. Many of the Germans mourned over the vines as if for the loss of their children. None of the theories regarding the causes of the mildew rot, blight, etc., seem to account for the results.

Having double bowed my vines this season, I look for almost a double crop, each vine being sound and in good bearing order, the fruit well set, and remaining on the stock well.

My Rebecca has six bunches, which have already begun to color, but being the first year of bearing the bunches are small. My Concord is a most thrifty vine, with branches and berries large and plump, which even the severe drought of last month failed to wilt or injure.

Two grape-vines of the White-Fox have fruited, and for the purpose of giving them a distinctive name, I have called one the "Helen" and the other "Frank." The grapes are large and round, and indicate at least that one of them will be a good table grape. These, with my Mammoth Catawba, I had trained upon a wall, which may account for their large size, increased, no doubt, by regular watering during the drought.

Sulphur strown on quick lime, has been tried, and found to be a partial remedy for the mildew and for destroying the lady-bug which stings the fruit during the evening. It may help what is called the dry-rot, which some think is the result of the injury. For the bitter-rot no remedy has been found.

All of my seedlings are doing well, and although a majority of my slips failed to root this

season, still, I flatter myself that there are enough to show the quality of the new vines. Among my rambles in Franklin, I met several Germans who spoke with much delight of the rich white and black grapes of the old country, and their intention of trying them in their new home. [The old story.—ED.]

I have tried the sweet White-water, Black Hamburg, and the Black Prince, with the usual result of a failure.

My vineyard will yield about 300 gallons, but were I setting out a new one, I would set the vines not less than six feet apart, and double bow every thrifty vine.

In small fruits, my strawberries did very little good this season, while my raspberries have been a success, from the Black-cap of the fields, to the rich Antwerp, Catawissa, Burton and Wilder. This being the first year of my Lawton blackberry fruiting, I am well pleased with the *promise* it makes, much more so than with the *fruit* of *some* of your *honest* Eastern venders, who send out *extra-choice* varieties, for which they charge *large* prices, and give you *small* berries, almost worthless for what you wanted them for.

Connersville, Ill., August 4, 1859.

A NEW HEDGE PLANT.—A good deciduous hedge is still a desideratum. The Osage orange and Honey locust form serviceable hedges when properly attended to; but herein lies the difficulty,—they grow so luxuriantly that at least two trimmings are required during summer to keep them in proper order; and as few can afford the necessary time during that busy period, the consequence is that few good hedges are seen, and even those that have succeeded in rearing a good fence are severely taxed in keeping it as such. What we require is a plant that, like the English hawthorn, can be managed by one yearly trimming, and that to be done during winter when there usually is more leisure to attend to such operations. Such a plant is the *Viburnum lentago*, or sheep berry. Naturally a plant of compact habit of growth, but little pruning will be necessary, and its foliage is peculiarly suitable for the purpose of a hedge. Compared with Osage orange or Honey locust its growth is slow, but *it grows into a hedge*, and will not require to be headed down for two or three years, as these strong growing plants must be in order to induce side shoots, and will, under good treatment, form a hedge 5 feet high as quickly as those of more luxuriant growth, since the upright growth of the latter is in a measure lost for a year or two. The flower of this Viburnum is much like the hawthorn both in appearance and fragrance, and altogether it is one of the most desirable plants for a shrubbery, although seldom planted. Being a native shrub it is seldom grown in nurseries to any extent, but as it seeds freely there need be no difficulty in raising it in quantities. I hope to see it become a favorite hedge plant. [Probably the *Ligustrum Vulgare* is here meant.—ED.]

I think that the Celtis occidentalis or Nettle tree would also be a good plant for hedges.

Germantown, Pa. WILLIAM SAUNDERS.

MR. EDITOR:—This poor fruit season may perhaps be turned to excellent account by noticing and recording for future use the sorts of fruit that bear best and hence are most reliable. I shall speak especially with reference to the apple only, as being in its varieties the only well established fruit among us. But the pear this season is bearing here very much better than the apple, and I feel the utmost assurance that with right management the West will yet abound with that princely fruit. In my very limited range this season I have noticed fine crops on the Maiden's Blush, Carolina June, Trenton Early, considered synonymous with old English Codlin, Carthouse or Little Romanite, while the Winesap, Milam, Jannet, Yellow Bellflower, Seek-no-further (Westfield), English Golden Russet, Rambo, and others have partial crops. And yet this season on the whole must be considered, to some extent, exceptional as a test to the permanent bearing qualities of different varieties, for at least two of our best bearers ordinarily, the Limbertwig and Red Lady-finger, are almost totally barren so far as I have noticed them.

T. McWhorton, of Mercer Co., an extensive orchardist writes that among his best bearers are Red Astracan, Maiden's Blush, Sweet Pine, Duchess of Oldenburg, Keswick Codlin, Jersey

Sweet,—nearly every one like our own list above early varieties. Among those bearing reasonably well he names Peck's Pleasant, Rambo, Summer Pearmain, Early Harvest, Jonathan, Carolina June, Sops of Wine, Golden Sweet, Autumn Strawberry, Lowell, Peach Pond Sweet, Summer Sweet Paradise, Cooper's Early White, Milam Domine, Huribut, Jannet. Most of these are also summer or fall varieties, of which, by the way, the lists afford a far greater number that prove satisfactory here at the West, than of winter fruit.

Mr. McWhorton also gives a description of an early apple received by him from Knox Co., in this State, which from its very long stem he calls Early Long Stem. "Fruit under medium, oblong-conical, slightly ribbed; cavity wide, acuminate, stem over two inches long; basin shallow, much plaited, color green or olive green with whitish specks; flesh very fine, juicy, rich sub-acid, *first rate:* I believe as good an early apple as I ever tasted. Season, August 1st. Have heard it is productive, but have had only some half dozen specimens."

Bloomington, Ill., August, 1859. Truly, F. K. PHŒNIX.

JOHN JAY SMITH, ESQ.—Our grape crop in the West promises to be very large—the best since 1853. Some vineyards will produce 400 to 800 gallons to the acre,—the average yield will probably be 350 to 400 gallons per acre, for the Ohio Valley. The season for rot is now over, and we have nothing to fear but hail-storms. The vintage this year will be unusually early, owing to our warm, dry summer. It will probably commence the 3d week in September. The first week in October is the average commencement for a series of years, in this vicinity. Very truly, R. BUCHANAN.

Cincinnati 11 *August*, 1859.

DEAR SIR:—Being in the vicinity of Baltimore, Md., on the 10th of June, I called on Messrs. Sam. Feast & Sons, and through the kindness of the elder Mr. Feast, was shown through their strawberry plantations, and I had the pleasure of seeing and tasting their new seedling, "Fillmore," which has been attracting considerable attention in that vicinity for two or three years past. They have not less than 100 varieties in bearing, including about sixty of their own originating, selected from several thousand seedlings grown in 1852,—the time at which the "Fillmore" originated. Many of them promise well, but the "Fillmore" has left all in the rear; no plants of it have as yet been sent out, but they have very wisely been using considerable effort to test its value before offering it to the public; it is found in every quarter of their grounds, side by side with other popular sorts, and everywhere showed the same marked superiority. It had, evidently, as Mr. Feast told me, passed the meridian of its season by three or four days before I saw it, but nevertheless I have never seen a strawberry that pleased me so well. I might safely say that the berries were one fourth larger than any of the other varieties, not excepting Hovey, Wilson or Peabody. It is of fine flavor, and as to its value as a market variety you may judge from the fact that the Messrs. Feast were then in the flush of the strawberry season, getting fifty cents per quart for them in Baltimore. The plant is a robust grower and evidently very hardy. It is a hermaphrodite.

I have no interest in thus noticing it, further than the interest or good of the public is concerned. There is much *humbuggery* in new fruits now-a-days, and I consider it the duty of every pomologist to expose these impositions whenever they are cognizant of them, as well as to notice favorably such fruits as he thinks, after a careful examination, will prove valuable to the community. I think whoever procures Messrs. Feast's Fillmore will never have cause to regret it.

We have very few peaches and not more than half a crop of apples; a friend of mine in the Eastern part of this State sent me three varieties of peaches on the 13th of July, two of these seedlings of his own raising; one was really a fine peach and of good size for so early in the season. It seems strange that they ripen about 3 weeks earlier 150 miles East of us than they do here. I suppose you have plenty in market now from the South.

Staunton Nurseries, Staunton, Va. Yours, truly, F. DAVIS.

FRUIT IN NEW YORK.—As to the demand being regular or uncertain? My experience is—that you can never take fruit into New York at a *wrong season of the year*, and you can *never take enough of it*. But if you take all GRAPES—they ask—havn't you got peaches, apricots, nectarines, plums, &c.? It would be a good investment for any practical man to grow the above on a large, extensive scale. I could make it *pay well*, but 95 per cent. of those who start into Horticultural pursuits are mere speculators that know nothing about the matter at all—or employ some man who has worked in the old country, in some garden belonging to Lord Fizzle, or the Duke of Noland, and they write and talk generally a lot of impracticable nonsense and trash—lead and misguide, and ruin everything they get in contact with.

In reference to the New York fruiterers and their per centage, they generally contrive to get about one half. We get what we consider our fruit is worth, and leave them to get what they can by retail; we have *no per-cent. agencies*. Nectarines, peaches, apricots and plums, in our *American* Orchard House, *will pay*. It seems to me that men are unable to step out of the old school-boy way—they *practise* the same *old routine* of "my father," or say, Mr. Somebody did it, consequently I must do it. There is too much of the *practical* and not enough *originality*. If Mr. Rivers has struck out an original feature in England, why should not we strike one here, that is better adapted for our wants, our climate and our necessities? If Mr. Rivers is satisfied with a peach in a pot with its dozen fruit, it will scarcely satisfy nor pay us in a commercial sense. If Mr. Rivers has span-roofed houses with pots holding scrubby sticks, we must have span-roofed houses with TREES *in rows, espalier*, three or four feet, one row from the other, and we must have *as much or more* fruit on them as we used to have in our orchards some years ago. Or we must train them under the glass as *fans*, and we must work our peaches, apricots, nectarines, &c., on plum stocks if they do cost a trifle more; and we must train our own trees from the *bud;* we must also plant the kinds that pay the best, and throw the great long nursery list away to the four winds. *Noble, fine, handsome fruit must go into the* COMMERCIAL ORCHARD HOUSE. The object of a few days *earlier* amounts to nothing. When we have it, what is poor fruit worth? A peach with a large stone and an insipid bit of skin! All these things have to be guarded very closely, and I give them as suggestions. I see so much utility in this orchard house, so many ways of constructing for the required wants of the various kinds of fruit, that is requisite should be grown, that I could scribble for a month; but I will not punish you. [Pray punish away—we rather like it.—ED.] C.

ALLIUM ACUMINATUM.—A few bulbs of this charming plant were sent from California to the Horticultural Society by Mr. Hartweg, and flowered in the Chiswick garden, in a greenhouse. It is, however, hardy, if kept in a place dry in winter. The name onion conveys to an English ear ideas of anything but beauty, for many common species are as ugly as plants well can be, and the handsome kinds are almost unknown in gardens. Nevertheless, in a genus consisting of nearly a couple of hundred species, many may be found which ought to take rank with hyacinths and jonquils; of these moly and the magical onion are well-known examples, though now-a-days confined to curious collections; and the present rare species is another, much handsomer than either, and probably the queen of the family. Its gay flowers, almost transparent when colorless, and stained with the richest rose-color near the points, can scarcely be regarded as inferior in beauty to the Guernsey Lily itself, and they are far less fugitive. The plant grows about a foot high, with narrow taper rushy leaves, about as long as the scape. It is well deserving of cultivation in every border.—*T. K. S., in Gardener's Chronicle.*

FROM OUR YOUNGEST CONTRIBUTOR.

It was a place I had never been to before; and no, thank you, I'd rather not go again. It was like a sea-port town, you know, and everybody got their livings by selling fish; and so I set off to climb a very high hill that was there. And the sun seemed perched at the top of the hill like a great snow-ball, only not the color of snow, and I kept wondering what would become of me if it should chance to roll down.

There was a nice little girl climbing the hill about ten yards ahead of me. A nice little girl? Oh, you know what I mean—she wore ankle-bands, trousers with crochet round them, and one of those all-round-my-hats.

I asked her who was her hatter, and said it was very warm climbing. 'Miss, may I have the pleasure of giving you a hand up?' and she said: 'Thank you, sir. You are a very polite boy; but, thank you, I haven't far to go.'

No, I didn't see her face; she had one of those hats on, didn't I tell you? but she had a very nice voice, like ma's when she speaks to baby. When we got to the top of the hill, there was a great big fellow waiting for us, and he never said a word, but came and punched me, and when I said: 'What's that for?' he boxed me the second time; and so I said: 'Just do that again—will you?' and he did.

Then the little girl whispered to me that he was her husband, and that I'd better run away, because he had a nack of putting little boys out of their misery, and then pickling them. She said he'd killed more people in his time than he could bury if he were to dig graves twelve hours a day, besides overtime, for sixty years. So I gave him a regular look, and ran down the hill, calling him 'Old Doctor! Old Pills!'

Not the same side of the hill; and I ran straight into an orchard, where there were lots of apple and pear-trees. There was a fellow there who used to go to Cockie Bell's school when I did, and he was stealing apples. I told him that the Bible says, Thou shalt not steal, and, besides, you'll get caught at it; and just at that moment the old farmer came up, and he said to that fellow that used to go to Cockie Bell's: 'Brimstone!' and to me: 'My little man, I have overheard your very sensible remarks, and I perceive you have had a religious bringing-up.'

And I said: 'Can you sell me sixpenceworth?' And he said: 'Of my pears?' And I said: 'Yes, sir, please.' And he said: 'My fine little fellow, we will see—we will see.'

When he was gone, I remembered that I had bought a pennyworth of Turkey nobs out of the sixpence, and when I counted my money,—there, I'd only fivepence!

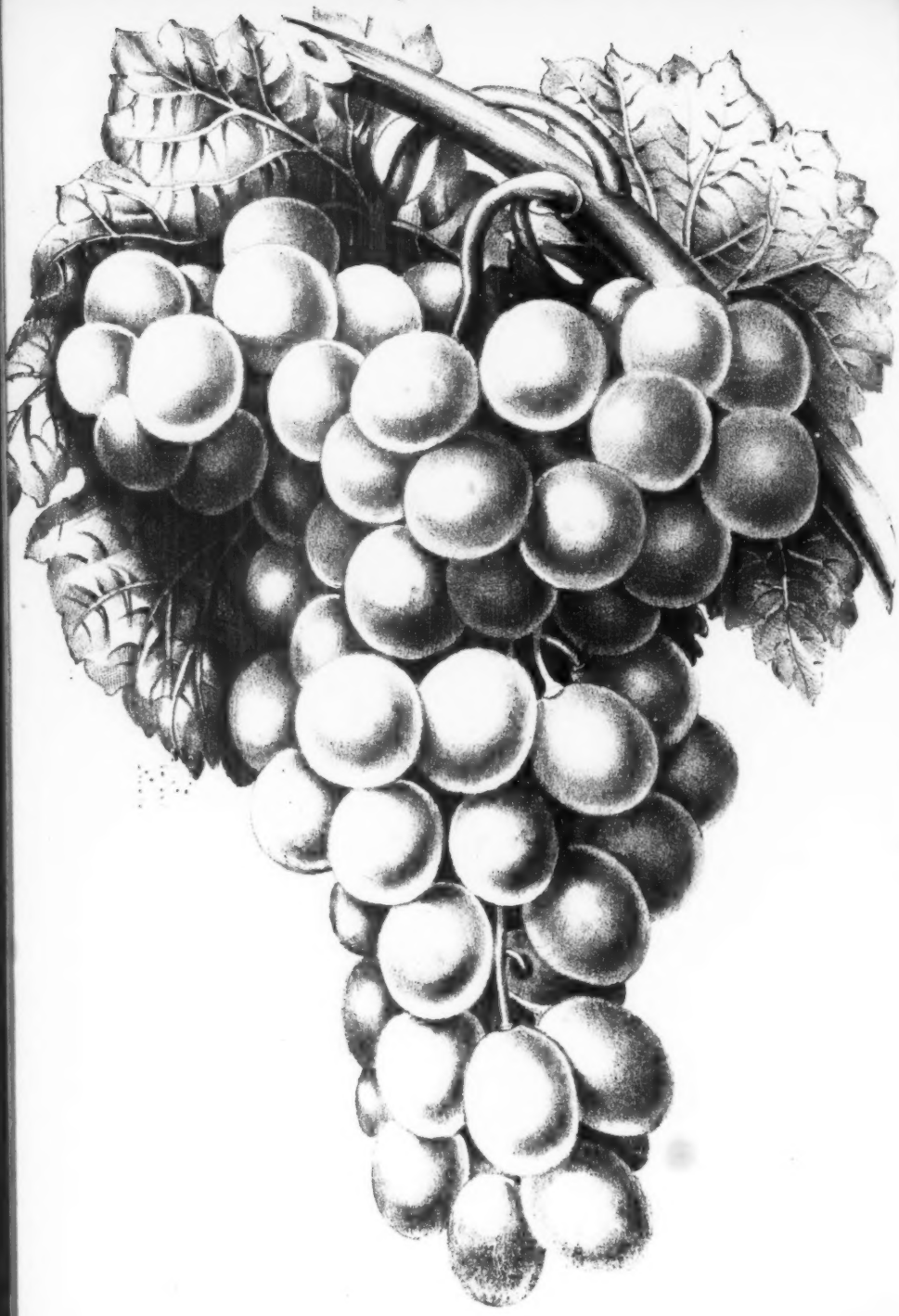
When he came back with a large dishful of pears, I looked at them and said: 'Haven't you made a mistake, sir?—wasn't it fivepenceworth I said?' and he said: 'Oh, was it, my fine little fellow? Well, then, I've made a mistake; but, as you are a good boy, and have pious parents, you shall have the pears all the same.'

Then he went on digging in a parsley-bed, and I sat down eating the pears, only they had no taste, and he shouted to know if I shouldn't like to play with his little boy: and I said: "What! all about this garden?' And he said: 'Yes.' And I said: 'Oh! shouldn't I though!'

So he took me to his house—a very funny house, and he had no wife, and it was very dirty; and he opened the door of a room, and there was a horrid monster; and he said that was his little boy—why didn't I speak to him? And so I said: 'Have you any marbles?' And that horrid monster said: 'Oh, lots! Come in; I'll play you.' And I wanted to run away, only I could not; and this creature began letting off fire-wheels on me, and throwing squibs and serpents in my face; and he made me hold my arms straight out, and he rammed them hard, and let them off like cannons, and blew my fingers into a nasty dark pond; and horrid alligators, with red eyes, came and tried to swallow them; and leeches came creeping up my trouser-legs, and they got in my mouth, and down my throat, and up my nose, and some of them curled themselves up in my head, as if they were going to stop there a good while. And that horrid little monster sat on a bundle of serpents, and they made themselves into an arm-chair for him, and he kept laughing and shouting: 'I'll play you—I'll give you sixpenceworth of pears for fivepence.' And some very little red-hot men came and kept jumping through my eyes, and then rolling out of my mouth, follow my leader, and trying who could do it quickest. And one of them borrowed a pair of bob-nailed shoes, and lay on his back on my tongue, filing at my teeth with them. And another of them kept putting his head out of my left ear-hole, and shouted 'Apples!' and then out of my right ear-hole, and shouted 'Pears!'

All at once the side of the room fell down, and there was such a beautiful lady sailing in a large cockle-shell on a lake of very blue water, and she said; 'Physic!' and all these demons vanished.

Didn't you guess? Why, that was ma, and she said: 'For goodness' sake, Alfred, dear, why do you moan so pitiably?' And when I told her all about it, she said: 'My love, you have had the nightmare. It is time to take your medicine. Don't go to sleep on your back, or you will have it again.' And I said: 'What! the medicine, ma?' And she said: 'No, dear, the night-mare'.—*Chambers' Journal.*



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